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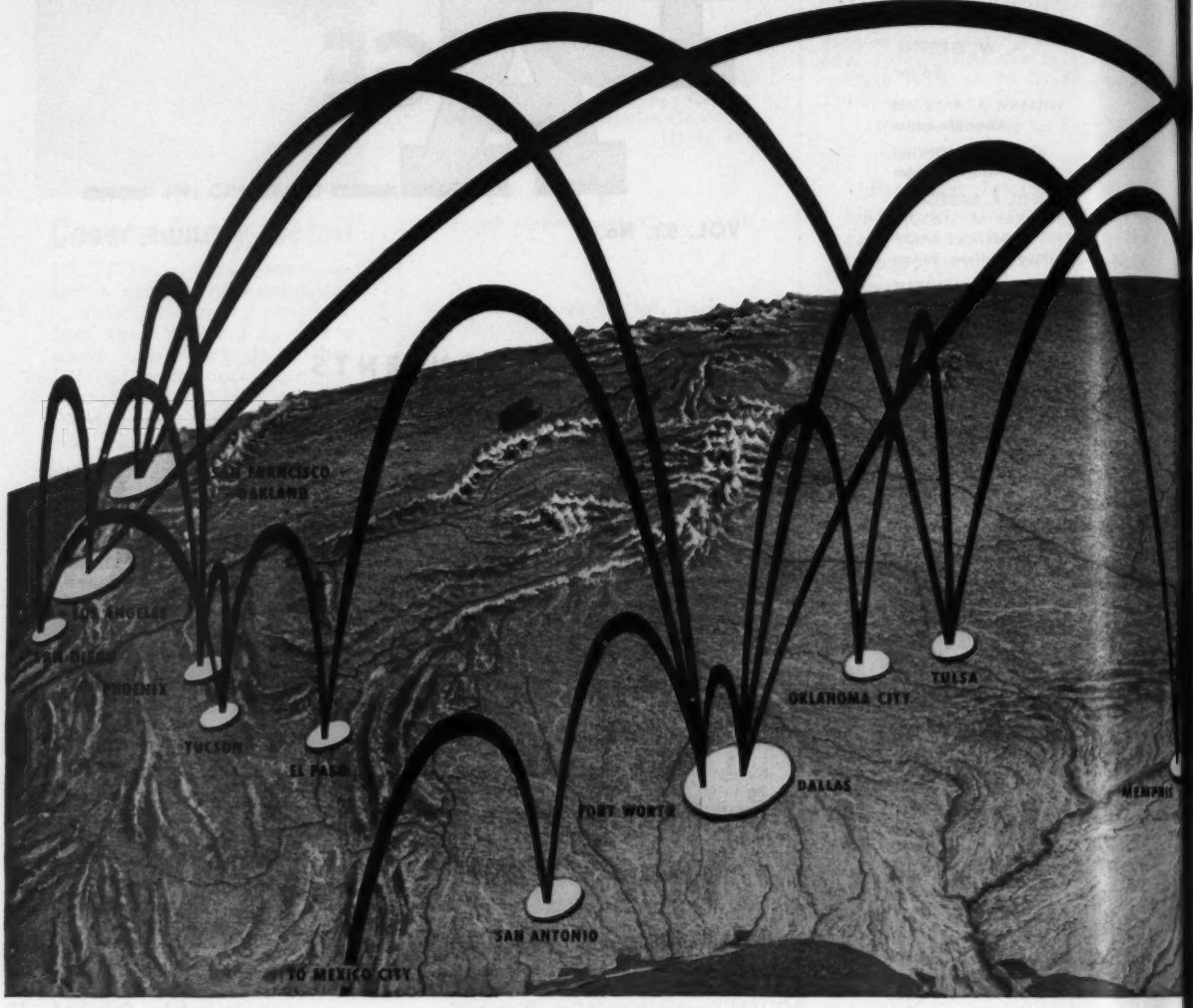

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On the Line—

We Belabor the Sinners

DRIVING along the highway the other day, we turned on our car radio just in time to hear this remark: "I hope to reach you who do not go to church on Sundays, because I have not the heart to belabor the good and faithful with the message you need—God's promise of eternal damnation for those who spurn Him. I'm going to give you that message—but good! No, no! Don't you dare turn off that radio!"

Brother-r-r! After an opener like that, we had no choice but accept the moral challenge.

Well, that radio sermon gave us much to think about—spiritual and temporal. Among temporal matters we thought about some letters we had received that day. One came from one of the best warehousemen in the country, who operates four fine fireproof public warehouses. He voiced what might be called righteous indignation.

He called our attention to certain statements in the article "Stockpiling for Destruction," which appeared in our April issue. He said, justifiably, that they put his industry in a bad light; that from his experience, those statements pertained mostly to private warehouses; and that the article should have emphasized this fact.

Then we thought about comments from another public warehouseman of equal repute. He applauded the article highly, acknowledging that it applied mainly to private warehousing. But he emphasized that some public warehousemen also were guilty of the same faults. It was high time, he said, that they were alerted to better methods to preserve the fine reputation for safety enjoyed by the public warehouse industry as a whole.

Despite the difference of opinion, we agree with both. Although, for our money, the worst fire traps are the privately leased temporary "warehouses" that never were intended for that purpose—just old buildings nobody else wants. Fire statistics will list them as "warehouses."

We delayed publication of the article for months in an effort to segregate the facts for private and public warehousing. This proved impossible; fire insurance statistics apparently make no such detailed distinction.

Decision to publish the article was based on the fact that the data were accurate and that more good than harm could come from its publication. It's a mighty poor industry that cannot stand occasional critical inspection.

Well, like the preacher, we have evidence that our "good and faithful" have read the message, but we haven't heard a grunt or a squeal from the "sinners." Have you?

Seems as if fire and sinners go together—here and in the hereafter.

Yakkety Yak

"Fire is man's best friend"—meaning insurance benefits?

LABOR not to belabor anybody? —There's a good chance for a peaceful contract deal with Steel when current contract expires June 30. The Union modified many demands, including guaranteed wage.

. . . Don't be fooled if June labor statistics show a big boost in unemployment.

. . . Every year thousands of college graduates go looking for jobs. In past years, they were hired en masse right out of classrooms. Won't be so this year.

. . . Then there will be the usual summer letdown.

. . . A good upswing this fall.

. . . SEAWAY: Great Lakes' ports are exultant over future status as inland seaports. Already contracts are being discussed for big freight terminals and various new distribution services.

. . . NYC's "Golden Gloves"—The Young vs. White slugfest, which was staged in an Albany armory, got a championship, blow-by-blow coverage by 125 radio, newspaper and magazine reporters. Ringside spectators and participants even were treated to a box lunch—about 2,000.

. . . When the heat's on, many get fired—but only a few with good ideas.

H. V. Greene

Editor

For handling unit loads of bagged materials, there's nothing like . . .

MEAD CHESTNUT POKE-PAK

NO MAINTENANCE. Bags will not be punctured by nails or splinters. Load will not tip, because center of gravity is low.

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MUCH LESS LOADING AND UNLOADING TIME. Does the job better in a fraction of the former time. Permits fullest use of limited dock facilities.

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CONSULTANT SERVICE. Mead supplies carloading diagrams, bag patterns, and samples at no charge.

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PALLET OF GREAT STRENGTH. This sturdy, rigid loading base, made of chestnut and other hardwood fibers, can lift anything your fork truck will lift. Yet it costs so little you can throw it away after use.

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Circle No. 107 on Card, facing Page 51, for more information

LETTERS TO THE EDITOR

Tax Amortization

To The Editor:

In the Washington DA column in your April issue an item mentions the Office of Defense Mobilization considering applications for fast tax amortization. Does this agency have authority to lend money for warehouse construction?

W. L. Wiese
Secretary

Central Storage & Warehouse Co.
Madison 3, Wis.

ODM is not a lending agency. As an inducement to private industry, ODM allows certain types of industries, for certain type constructions, to depreciate construction costs over a shorter period of time than normally allowed. In the long run, this fast tax write-off is a money saver for the industry involved. Actually, construction is approved only when it is proved necessary to meet defense requirements. The latest allowance classification extensions (April 20) include: Freight cars, inland waterway vessels, diesel locomotives, ore carriers, railroad terminal and road facilities, and refrigerated warehouse and storage facilities.—Ed.

Hydraulic Lifts

To The Editor:

If possible please furnish names and addresses of distributors of hydraulic lifts for use on ton or ton-and-a-half trucks.

M. G. Boone
R. T. Manager

Continental Oil Co.
Fort Worth, Tex.

A tear sheet of Page 75 from the February (Directory) Issue of DISTRIBUTION AGE *has been forwarded to Mr. Boone. The Annual Where-To-Buy Directory contains names and addresses of dozens of elevating end gate, hydraulic lift, and other lifting device manufacturers.—Ed.*

Safety Mirrors

To The Editor:

We would appreciate additional information on the special safety mirrors used by the Supplee-Wills-Jones Co. to speed milk loading operations and prevent fork truck accidents on the loading docks, which appeared on Page 52 of your March issue.

F. W. Schatzman
Safety Supervisor

Chance Vought Aircraft, Inc.
Dallas, Tex.

They are No. 180 Klear-Vu Safety Mirrors with circular convex glass, manufactured by Lester Brossard, 540 N. Michigan Ave., Chicago 11, Ill. —Ed.

Chuting the NEWS

Coming Events

June 8-9—Packaging and Materials Handling Institute, University of Southern Cal.
June 9-10—Trans-Missouri-Kansas shippers Board, Hutchinson, Kan.
June 9-19—Mechanical Handling Exhibition & Convention, London, England.
June 10-11—Pacific Coast Shippers Advisory Board, San Jose, Calif.
June 15-16—Ohio Valley Transportation Advisory Board, Indianapolis, Ind.
June 16-17—Southeast Shippers Advisory Board, Jacksonville, Fla.
June 17—Allegheny Regional Advisory Board, Cumberland, Md.
June 17-18—Pacific Northwest Advisory Board, Seattle, Wash.
June 21-25—National Freight Claim Council of American Trucking Assns., Inc., St. Louis, Mo.
June 24—American Trucking Assns., Inc., Annual Motor Carrier Shipper, Carrier-Receiver Meeting and Banquet, St. Louis, Mo.
June 23-24—Great Lakes Regional Advisory Board, Traverse City, Mich.
July 5-17—First Annual Material Handling Training Conference, Lake Placid.
July 6—Texas Industrial Traffic League, Annual Meeting, San Antonio, Tex.
July 8—Southwest Shippers' Motor Carrier Conference, San Antonio, Tex.
July 14-15—Mid-West Shippers Advisory Board, Milwaukee, Wis.
July 20-21—Middlewest Shipper-Motor Carrier Conference, Minneapolis, Minn.
July 28-29—Northwest Shippers Advisory Board, Duluth, Minn.
Aug. 1-3—Movers' Conference of America and Fifty-four Affiliated Movers Assns., Annual Assembly, Statler Hotel, Boston, Mass.
Aug. 17-19—Fifth Western Packaging & Materials Handling Exposition, San Francisco, Cal.
Sept. 28-30—Ninth National Industrial Packaging & Materials Handling Exposition & Annual Technical Short Course, Chicago, Ill.
Oct. 18-22—42nd National Safety Congress & Exposition, Chicago, Ill.
Oct. 25-29—American Association of Port Authorities, Forty-third Annual Convention, San Francisco, Cal.
Nov. 10-12—18th National Time & Motion Study & Management Clinic, Hotel Sherman, Chicago, Ill.

Movers' & Warehousemen's Assn. of America Elect Atherton President at 19th Convention

Leland R. Atherton, Wichita, Kan., was elected president of the Movers' & Warehousemen's Assn. of America (formerly Independent Movers' & Warehousemen's Assn., Inc.) at the 19th Annual Convention, held in the Chase Hotel, St. Louis, Mo.

Other officers elected were James O. Delcher, exec. vice-president, Jacksonville, Fla.; William C. Stevens, secretary, Flint, Mich.; Alfred E. Crowe, treasurer, Arlington, Va., and Carroll F. Genovese, exec. secretary, Washington, D. C.

Regional vice-presidents elected were: Eastern—Joseph W. Engel, Elizabeth, N. J.; Central—Russell L. Von Der Ahe, St. Louis, Mo.; Southern—R. H. Suddath, Jacksonville, Fla.; Western—Gladys I. Theus, Oklahoma City, Okla., and Far Western—Paul J. Smith, Los Angeles, Cal.

The convention formally adopted the new name of Movers' & Warehousemen's Assn. of America.

Among prominent speakers at the convention were Harrison Wood, world commentator; Benjamin R. Miller, director, ATA industrial relations; George Alexander Bowie, director of public relations, Firestone Tire & Rubber Co., and Conway B. Briscoe, director of public utilities, St. Louis, Mo.

—DA—

Southern Carriers Oppose McLean Piggy Boat Plans

Awaiting approval by the ICC, McLean Trucking Co. finds its $50 million plans for a coordinated water and land system for transporting highway trailers via ship between South and North Atlantic ports under fire by a group of 19 Southern motor carriers. Organized as the East-South Trucking Committee, the group has no objection to establishment of the piggy-boat service by an independent water carrier, but objects vigorously to the control, domination and operation of such a service by a competing carrier.

The Port of New York Authority, Department of Defense and Department of Agriculture and the Teamster's Union support the McLean plan. Eastern railroads and several individual rail carriers are among those opposing the applications of the McLean company.

—DA—

St. Louis Packaging Forum

"Management's Approach to Packaging" was the theme of the one-day Packaging Forum, May 27th, in the Hotel Statler, St. Louis, Mo., sponsored by the St. Louis Advisory Committee of the Packaging Institute.

"New Developments in Package Testing," was the subject of an address by Dr. L. E. Simerl, Research & Development Dept., Cellophane Div., Olin Industries. J. A. Klapp, assistant to president, United Air Lines, spoke on "Air Freight—Present and Future."

—DA—

Trucking industry employees were granted an average wage increase of 12.6 cents an hour per employee during 1953 by the settlement of union labor contracts, an ATA study revealed.

(Please Turn Page)

Chuting the News

(Contined from Preceding Page)

PRR Inaugurates Piggy-Back Service June 16 Between Philadelphia, Pittsburgh and Chicago

Piggy-Back service between Philadelphia, Pittsburgh and Chicago begins operating June 16, the Pennsylvania Railroad announces.

The service will be started with 90 flat cars of standard 50-ft design equipped for rail trailer service. If the experiment proves practical, 200 new depressed center flat cars, 75 ft in length, will be ordered for August delivery.

Tariffs for the new service were filed May 17 at regular motor carrier rates. For the initial experiment the trailers used will be owned or leased by PRR.

Second day delivery will be furnished in both directions between Philadelphia and Pittsburgh and Chicago. Similar service will be provided between New York, Pittsburgh and Chicago.

—DA—

NAVL Hit '53 High

A gross of nearly $20 million in 1953, a 20 per cent increase over 1952, was the business achievement of North American Van Lines, Inc., stated James D. Edgett, president, in an address to approximately 300 agents, employees and guests attending the organization's recent convention in Los Angeles, Cal. The long distance moving firm has grown from 60 agents in 1940 to the present 1,100 agents, who are located in principal cities of the U. S., Canada and Alaska.

SMCRC Elects McLean

M. P. McLean, president, McLean Trucking Co., Winston-Salem, N. C., was elected president of the Southern Motor Carriers Rate Conference at a recent meeting of the Board of Governors.

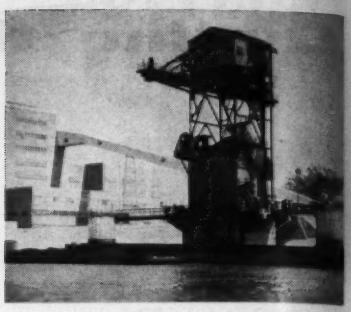
—DA—

The Senate has voted to recommit S. 1461, the "time-lag" bill, to its interstate and foreign commerce committee for further study.

Georgia Ports Authority Hosts Reception for Gov. Talmadge

Hosts at a reception in honor of Governor Talmadge on his recent trip to New York in the interest of new business and industry for Georgia were members of the Georgia Ports Authority: (l. to r., seated) Tom Talmadge, representative; Peter Roe Nugent, member; Governor Talmadge; William R. Bowdoin, chairman; D. Leon Williams, director. (standing) M. M. Monroe, member; Taxi Smith, secretary; John Vandegriff and Jack Tumlin, representatives

Coal Handling



Virtually all coal used at the new Hennepin Power Station of the Illinois Power Co. is unloaded from river barges by this specially designed equipment constructed by Dravo Corp. Operating along a 100-ft runway supported by the tower, the rope-type trolley handles a 6½-ton clamshell bucket to dig coal from barges on the Illinois River. With a 35-sec free-digging cycle, the unloader can deliver some 670 tons of coal hourly. Average performance, is 450 tons an hour.

Safety Awards

The Pennsylvania Motor Truck Assn. was awarded the ATA trophy for the state association with the most effective safety program at the spring meeting of the ATA Council of Safety Supervisors and the Equipment & Maintenance Council.

Pacific Intermountain Express won the Trailmobile trophy for the trucking company with an outstanding record in safe operation.

—DA—

Distribution Scholarships

Four scholarships in industrial distribution at Clarkson College of Technology, Potsdam, N. Y., have been announced by the Henry G. Thompson & Son Co., New Haven, Conn., in memory of the company's founder.

—DA—

Gass Honored By NDTA

Arthur H. Gass, chairman, car service division, AAR, was honored by the National Defense Transportation Assn. with a special "tribute of appreciation" for his outstanding contributions to defense transportation during 1953.

Allied Van Lines Announces Appointments to Regional Offices

Allied Van Lines Opens Regional Offices in Cleveland, Ohio; Denver, Colo.; Fort Worth, Tex.: At special meeting of regional and district managers, J. E. Hawthorne, executive vice-president (seated center), announced the following appointments—(l. to r., seated) L. Cieplucha, Midwest regional manager, Broadview, Ill.; G. Allen, Southeast, Atlanta, Ga.; W. C. Stokes, Southwest, Ft. Worth, Tex.; W. Pierce, Rocky Mt. Denver, Colo.; J. E. Hawthorne; W. W. Linder, assistant general manager; F. Bell, Central, Cleveland, Ohio J. T. Wills, Western, Los Angeles, Cal.; John Sobosan, Eastern, New York, N. Y. (standing) T. J. Revane, office services; D. F. Black, accounting; T. R. Perkins, operations; R. Prescott, Atlanta district manager; E. J. Flavin, legal and tariffs; J. Waspi, safety; E. C. Ziemer, claims; A. B. Dutton, Los Angeles; T. A. McCabe, Portland; J. Clark, Denver; J. Hillebrand, New York City; H. Black, Broadview; L. Kraig, Ft. Worth; R. Forman, state permits

Packaging & Materials Handling Institute At USC June 8-9 Sponsored by AMHS, SIPMHE

The third biennial Packaging & Materials Handling Institute will be held June 8-9 at the University of Southern California. It will be sponsored by the department of industrial engineering and the extension division of the University, SIPMHE and AMHS.

The packaging session will be held June 8, and the materials handling session on June 9.

Analysis of handling problems, selection of equipment, bulk handling, handling raw materials, shipping between plants, vendors and customers (manufacturing), distribution and warehousing, and preventive maintenance and replacement of equipment will be topics under discussion.

—DA—

Colson Corp. announces purchase of the assets of Service Caster & Truck Corp. Both companies manufacture wheeled products, including material handling equipment and casters.

—DA—

Claims Prevention Forum

A claims prevention forum will be a feature of the 17th annual meeting of the ATA's National Freight Claims Council, June 22-25, at the Statler Hotel in St. Louis.

Railroad Revenue Freight Car Loading

	1954	1953	1952	1951
January (5 wks.)	2,967,321	3,351,041	3,561,719	3,660,523
February (4 wks.)	2,461,745	2,730,301	2,911,090	2,834,472
March (4 wks.)	2,411,835	2,801,445	2,867,583	2,998,963
April (4 wks.)	2,445,157	2,957,088	2,912,199	3,152,196
May (5 wks.)	.....	3,883,088	3,677,596	3,977,393
June (4 wks.)	.....	3,203,942	2,605,738	3,294,786
July (4 wks.)	.....	2,963,805	2,236,068	2,993,321
August (5 wks.)	.....	4,022,382	3,882,069	4,120,219
September (4 wks.)	.....	3,153,226	3,363,834	3,311,846
October (5 wks.)	.....	4,024,439	4,156,014	4,316,505
November (4 wks.)	.....	2,796,888	3,139,489	3,138,884
December (4 wks.)	.....	2,413,396	2,671,756	2,700,094
Total	10,286,058	38,302,762	37,985,155	40,499,182

MEN

IN THE NEWS

Materials Handling

Milton J. Weber, left, vice president in charge of procurement, has been made a director and **Thomas F. Flood**, right, vice president in charge of manufacturing, Frank G. Hough Co.

Felix G. Evangelist — appointed export administrator of R. G. LeTourneau, Inc.

Jack Adams—appointed representative to Africa and Middle East for R. G. LeTourneau, Inc., **Berkeley A. Brunsdon**—Latin America and **Robert F. Eisenbeiss**—Washington, D. C.

R. J. Loeven—promoted to superintendent of the Akron Steel Products plant, **J. B. Call**—production manager and **D. E. Oldham**—chief production engineer.

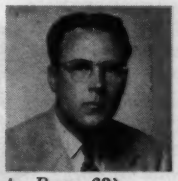
Packing & Packaging

Donald D. Dericott — appointed product manager, modern materials handling section, Food Machinery & Chemical Corp., Packing Equipment Div.

Al J. Reinberg—named assistant manager, Fulton Bag & Cotton Mills' Kansas City, Mo., plant; **Harold C. Forrester**—production manager.

David L. Luke, Jr., president, West Virginia Pulp & Paper Co.; **John D. Cowan**, executive vice president; and **David L. Luke, III**, a vice president of the same company—elected directors of Hinde & Dauch Paper Co. of Canada.

Carlton F. Diskin and **Samuel D. Bass**—elected vice president, National Container Corp.



William H. Caddoo — elected vice-president in charge of boxboard operations, Robert Gair Co.

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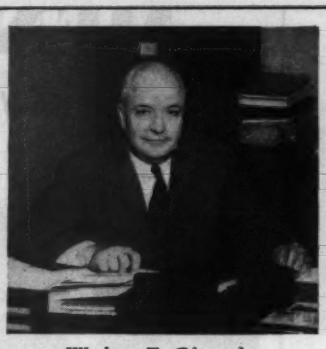


Walter F. Girardy
Secretary-Treasurer
THOMAS GOODFELLOW, INC.
Detroit, Mich.

DEPENDABLE
on the Big Jobs!

Thomas Goodfellow, Inc., Detroit Pioneer in Heavy Hauling Service,

TELLS HOW WHITES SAVE TIME... CUT COSTS

MODERN EQUIPMENT is mighty important in heavy hauling . . . particularly where motor trucks are concerned. That's why you see White Trucks on the job when Thomas Goodfellow, Inc., Detroit, handle their "big" moving jobs.

"Whites are engineered to our exact needs for dependability and economy," Walter F. Girardy, President, says.

"For 30 years, we have depended on White Quality and it has meant a great deal in our growth."

It's the same preference for White Quality everywhere you go . . . in every business. Find out how Whites can help your business, mean new savings. See *your* White Representative.

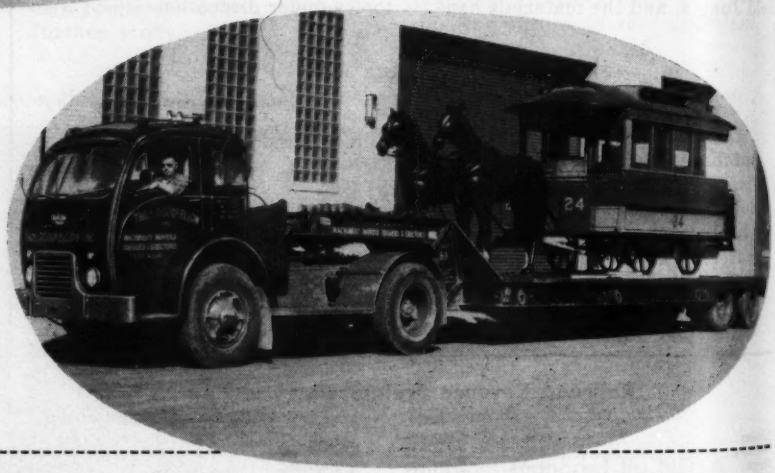
MINIMUM OF MAINTENANCE!

"We have bought Whites for 30 years because they are quality-built trucks. They are dependable regardless of how big the load . . . how tough the haul. Maintenance costs are low and payloads greater. They are the most profitable trucks on the road for machinery moving, rigging and erecting firms."

—Walter F. Girardy

QUALITY DOES IT!

TONS of machinery, or an unusual load like this hundred-year old horse-drawn street car in a Detroit parade, all get expert attention from White Trucks in the Goodfellow fleet.



White

THE WHITE MOTOR COMPANY • Cleveland 1, Ohio

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

Circle No. 110 on Card, facing Page 51, for more information

Washington DA

By Ray M. Stroupe, *Chilton Washington News Bureau*

Rate Wrangle Federal suit against the railroads which allegedly charged too much to move military supplies in World War II may not come up for a hearing. Date set by ICC for oral arguments is Oct. 6, but two ICC examiners are recommending dismissal. There is a question whether the government can show a clear-cut case of overcharging.

Trucking Prospects Development of the St. Lawrence Seaway could have beneficial results for midwestern truckers. When ocean-going freighters dock at such ports as Toledo and Cleveland, many manufacturers north of the Ohio may decide to put their products aboard trucks for fast service to wharfside. Speed of this operation, as opposed to movement by rail, probably will appeal to greater numbers of producers.

Surplus Capacity Refrigerator car surplus continues about one-third higher this year than in comparable months of 1953. Serviceable cars totaled a little more than 96,000 as the second quarter began, compared with 94,000 a year earlier. New cars are being brought into service faster than old equipment is retired, but the replacement margin is narrower than reported last year.

Storage Dilemma Government bin capacity for grain storage is fast approaching 735 million bushels. This total causes some worry at Agriculture Dept., where it's feared commercial storage companies will voice complaints of federal competition. Anticipating a space shortage of 150 million to 250 million bushels when this year's grain crops are in, however, the agency has contracted to buy privately-built bins with a capacity of nearly 100 million bushels as a partial solution to the problem.

Expansion Goals Fast tax write-offs still can be obtained on building of refrigerated warehouses and similar facilities, if that work begins by Dec. 31. That's the new, extended closing date ODM has set for eligibility in getting write-off certificates. Other expansion goals governed by the same date are those for freight cars, diesel locomotives, inland waterways vessels and Great Lakes ore ships, and railroad terminal structures.

Packaging Progress Smaller, lighter containers for equipment deliveries are helping the Air Force to economize. Improved packaging for aircraft rockets alone is producing savings of about $8 million. Use of padded vans for shipping electronic trainers and accessory gear contributes to savings totaling another $1 million in this fiscal year.

Price Propping Strong sentiment is seen in some areas for federal marketing restrictions designed to bolster growers' prices for fruit and vegetables sold to canners. Spokesmen for California and Florida growers have asked Congress to broaden the existing law propping prices for produce shipped and sold while fresh. They asked that the law be extended to cover fruit and vegetables bought by canners and processors. For the most part, canners oppose this idea.

Basket Sizes Standard sizes for fruit and vegetable baskets are going to remain under the close supervision of Congress, despite a recent Capitol Hill suggestion that the Secretary of Agriculture perform this function. This was one of the proposals made during debate before the House passed the Barden bill (H.R. 8357) last month. The measure authorizes production of a ⅜-bushel basket of the round stave type.

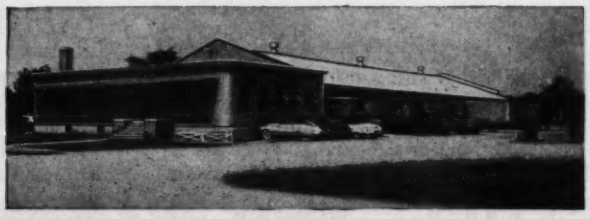
Radio Service Distributors and producers are speeding their work through greater use of 2-way radio. Since mid-1946, FCC has authorized more than 200,000 new radio stations. More than half of these are run by transportation companies, industrial firms, and public safety organizations.

Sweepout Campaign Housecleaning at a number of naval bases is relieving some of the space shortage in storage areas owned by the military. This task, involving public auction of unserviceable or excess items, also is resulting in surprising monetary benefits for the Navy. One sale this spring of such assorted gear as anchor chain, masthead lanterns, and oxygen masks at the Naval Supply Depot, Bayonne, N. J., brought a return of nearly 16 per cent of the book value of those items.

NEW MAGLINER MAGNESIUM DOCK BOARDS SPEED UP LOADING AND LOWER COSTS

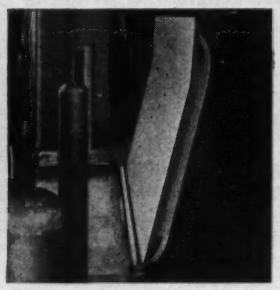
...for Associated Truck Lines!

Associated's new Kalamazoo, Michigan, terminal. The building is completely equipped with custom-engineered Magliner permanently-installed dock boards, and its 11,000 square feet of unobstructed warehouse space is designed to spot and service 35 trailers at one time.



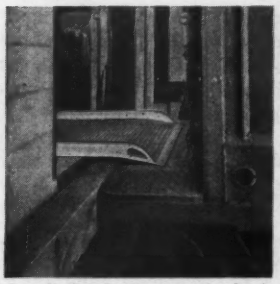
Loading doors with battery of Magliner dock boards in "raised" position. Lightness, low initial cost, automatic self-adjustment, and absence of maintenance were among the many reasons this Magliner permanent installation was specified.

Dock boards in the "down" position and ready for use. The units are recessed into the dock structure, thereby making them flush with the dock to provide safe, secure transfer of cargo between carrier and terminal.

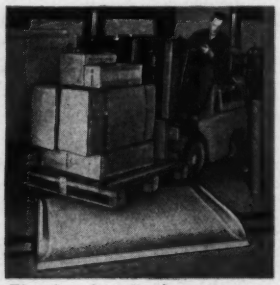


Close-up of installation showing recess and hinge construction. The use of dry babbitt bearings permits simplified, manual operation . . . eliminates all maintenance problems!

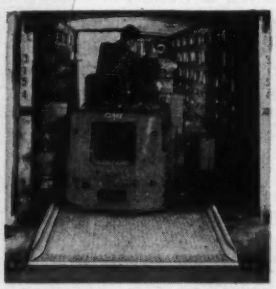
Boards are constructed of heavy-duty, lightweight magnesium. Over 5 feet wide, the units are easily raised or lowered by one man . . . No counter balances or costly leveling devices of any kind are required!



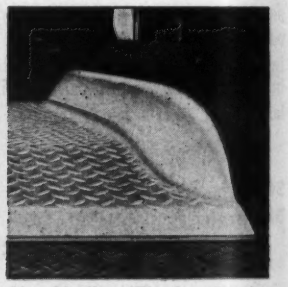
Installation is permanently fixed . . . recessed into concrete dock. Boards self-adjust to correct trailer floor height automatically; pre-determined angle of bend insures proper contact with trailer floor at all times.



Flared curb ends of cast magnesium permit easier, sharp-angle turns in limited areas. Dowelled-in, welded construction provides double the normal strength at this critical shock point.



The dock boards are designed to accommodate either manually-operated or power-operated equipment. Wide span permits easy cargo spotting in the carrier, and design takes into account low underclearance requirements.



New Magliner "Tire-Saver" curbs prevent metal-to-metal (wheel-to-curb) collision. Contact with curb can be made only by the tires—never the wheel rims, regardless of shock of impact! This eliminates single biggest cause of dock board and tire damage.

Gear your shipping and receiving operations to a new, high level of efficiency! Get peak capacity from your facilities with a Magliner Perma-Dock installation! Magliner magnesium Perma-Docks save you up to 65% in installation costs over other dock leveling systems of similar purpose . . . *and give years of maintenance-free, cost-free operation.* Investigate the countless advantages of having Magliner magnesium dock boards permanently installed on *YOUR* docks! . . . Lower your cost of doing business . . . Write today for complete data, and the name of your nearest Magline field representative.

Write for Information Bulletin Today

MagLine

MAGLINE INC.
PINCONNING, MICHIGAN

In Canada: Magline of Canada, Ltd.; Renfrew, Ontario

Circle No. 113 on Card, facing Page 51, for more information

Highway Congress Charts Problems

JUNE, 1954
Vol. 53, No. 6

NHUC chairman predicts rapid increase in highway construction, officials from four states present 'Blueprint For Adequate Roads.' Congress urges uniformity of vehicle laws and taxes among states

PROCEEDINGS at the Fifth Highway Transportation Congress in Washington last month charted progress on almost all fronts in the constant battle to improve the national highway picture.

Reports and panel discussions indicated, however, that our expanded national economy and the growing complexity of the highway situation are bringing new and bigger problems. These problems are keeping pace with, and in many instances outgaining, progressive action.

Sponsored by the National Highway Users Conference, the 3-day meeting attracted some 500 persons to become the most successful Congress to date.

Highway Construction

In his keynote address, NHUC Chairman Albert Bradley predicted a rapid increase in highway construction. His forecast was based on the fact that "most economic and federal roadblocks which have curtailed building and maintenance for at least 12 years have been removed."

He warned, however, that the problems of traffic congestion and downtown parking in urban areas remain unsolved, and that the situation becomes more serious daily. He urged highway organizations to cooperate more closely in their promotion programs, and to present these programs more clearly to the public, to get needed support.

A practical illustration of what four states are doing and have done to modernize their highway systems was presented in a panel discussion entitled, "How Do We Blueprint For Adequate Roads?"

William S. Canning, engineering director of the Keystone Automobile Club, served as moderator. Participants included: Sam R. Maxcy, Maricopa County (Ariz.) Farm Bureau; R. H. McCain, chairman of the Maryland State Roads Commission; R. S. Munro, deputy director of the California Department of Public Works, and W. G. Pruett, director of the Alabama Highway Department.

Basic Needs

Though each panelist approached the problem from a somewhat different angle, all seemed to agree on basic requirements: Careful appraisal of the existing situation, development of a sound and continuing program, public support, and legislative action.

Adoption of third structure taxes in some states, which threaten a complete breakdown in reciprocity, and lack of uniformity among states in motor vehicle laws were outlined in a panel entitled, "How United Are The United States?"

The panel was moderated by Amos E. Neyhart, Institute of Public Safety, Pennsylvania State College. Participants included: Robert Cass, assistant to the president of White Motor Co.; M. C. Connors, Oklahoma Tax Commission; J. P. Economos, director of the Traffic Court Program of the American Bar Association, and Ohio State Senator J. E. Simpson.

Election of Officers

Bradley, who also is executive vice president of General Motors Corp., was re-elected chairman of NHUC. Elected as vice chairmen were Arthur M. Hill, Executive Committee chairman of Greyhound Corp., and Herschel D. Newsom, master of the National Grange. A former master of the National Grange, Louis J. Taber, was renamed secretary-treasurer.

Nicholas Kelley, Jr., chairman of the NHUC Awards Committee and secretary of Chrysler Corp., described highway program reports that won plaque awards from the Conference for Colorado, Massachusetts, Maryland, Oklahoma and Washington. •

Brewery Beats Bottlenecks With Conveyor Network

Multi-conveyor system, over one mile long, supplemented by fleet of fork trucks and automatic palletizer have mechanized practically all handling operations in this Canadian brewery

By Hugh G. Jarman

Signal system uses red, green and white lights to inform operators of load conditions on incoming lines to soakers

Power hoist unloads bale of waste cartons from the two electrically operated balers onto the waiting fork truck

A MULTI-CONVEYOR system over one mile long is the nerve center of one of Canada's newest and most modern breweries. At London, Ontario, Canada, the new $4 million plant at Labatt's Ltd., consolidates under one three-acre roof three new bottling lines and all related operations.

Simultaneously, empty bottles are conveyed from railway boxcars, tractor-trailers and local delivery trucks direct to the three bottling lines. Each line consists of bottle soaker, rinser, filler, pasteurizer, labeller and packer. Conveyors then carry the full cartons to the warehousing area where they are automatically palletized before being conveyed by fork truck to the shipping dock or storage areas.

Two Main Conveyors

Two main conveyor systems lead from the unloading area. One serves the railway spurs and also simultaneously handles empties from two truck docks. The second conveys loads discharging from the truck docks. Four

Three automatic truck docks, push-button controlled, raise trucks to loading height; safety plates shown

All loading and unloading operations are handled indoors; 60 trucks and trailers can be accommodated in 8-hr day

huge trailers are able to unload at the same time.

Telescoping Conveyors

Two of the nine loading docks have been equipped with an extendable power boom, which may be extended with a power conveyor into the interior of the vehicle or railway car. After unloading, reloading begins by simply pushing a button (which reverses the conveyor system) and moving the boom over to a production line.

Six Platform-Conveyors

Six adjustable combination platform-conveyors, which raise automatically from the floor by means of hydraulic action, provide six inlets to the main conveyor system in the basement (see cover). After the empties are unloaded, the platform conveyors are lowered level with the dock and fork trucks immediately carry palletized loads of filled bottles into waiting vehicles.

Six Control Points

There are six control points on the incoming systems which permit the operator to direct cartons to any of the three storage lines or to any of the three soaker lines. In addition to governing the volume of empties directed to the various storage areas, the control points enable routing of bottles of different sizes and colors to their designated locations. A railway carload of 2,200 to 2,500 two-dozen cartons of mixed white and green bottles can be unloaded in one hour.

The conveyor systems are a combination of power, gravity and roller pallet types. The roller pallet type is used on the three lines feeding the three soaking machines. The roller pallets reduce the end-to-end pressure on the moving cartons, and along with a

(*Please Turn to Page* 58)

Cartons containing 2-dozen bottles are automatically palletized, carried by fork trucks to storage or shipping dock

Two indoor rail spurs off the railway line (right) serve the new plant; 8 freight cars can be handled at one time

Part II

Survey Shows Improvement

Industrial traffic managers report that 38 to 70 per cent of all rail cars still are dirty when received. Traffic managers clean from 79 to 90 per cent of these cars before they are put in use. Seventy per cent of traffic men report improvement over last year

ALMOST all industrial traffic managers participating in DA's Dirty Car Survey indicate that they are faced with a car cleaning problem in connection with their rail shipments. They clean most of the cars, refuse only the worst, use the least dirty as is to save time and expense.

Criticism to Sympathy

Remarks made by individual traffic managers on this situation vary from sympathetic comments to angry criticism. Most remarks point out that the necessity for cleaning imposes an additional labor cost and time delay on each shipment.

The next group of comments indicate that the problem either is non-existent with other forms of transportation or encountered only to a small degree.

However, all is not glum in the survey's findings. When asked if the dirty car situation is better or worse than a year ago, the majority replied, "Slight improvement."

The accompanying table gives a summary of answers to principal questions. As much as possible, respondents have been grouped by industries.

Admittedly, some of the groupings are broad. For example, the Chemical group includes Drug, Petroleum, Sand and Gravel companies. These may seem to have no relationship. Productwise, this may be so. However, from the shipping point of view, each of the respondents reported the use of the same type of cars and generally appear to have the same type of cleaning and contamination problem.

Representative Group

The respondents in this survey represent 12.48 per cent of all industrial traffic men in all parts of the country, with the Atlantic and North Central states accounting for about half of the total.

One further comment on the table seems advisable: This survey is intended to reflect the opinions of industrial traffic managers — readers of DISTRIBUTION AGE. However, it seems that a number of questionnaires reached traffic managers associated with transportation and warehouse companies, who saw fit to participate in the survey. Their number represents about 1.3 per cent of the total respondents in this survey.

For their benefit, this group is included in the table. Their comments, however, are not included in the following survey analysis.

Box Cars in Best Shape

Of all types of cars reported, box cars appear to be in best condition. Industrial traffic managers report that an average of about 38 per cent of these cars are received in a condition unfit for immediate use.

This figure is a median of the average per cent figures reported by the individual shippers. The total figures reported cover the full range of possible answers—from zero to 100 per cent.

The situation is worse with other types of cars. For example, 41 per cent of the gondolas and flat cars received by industrial traffic managers are too dirty for immediate use, and 70 per cent of the refrigerated cars, tanks, hoppers and others received are not clean.

Very few respondents—about .013 per cent—reported having no troubles due to dirty cars.

The industries reporting the most troubles are Chemical, Electrical, Furniture, General and Metal manufacturing, and Textile and Tobacco which are shown in the table as Miscellaneous.

The shippers prefer to clean most of the cars rather than subject themselves to the trouble and

Editor's Note: Part I, "Dirty Car Responsibility," appeared on Page 23 in the April, 1954, issue of DISTRIBUTION AGE. PART II is the concluding article in a series of two.

in Dirty Car Problem

INDUSTRY SURVEY

Summary of Returns from Traffic Managers Participating in Dirty Car Survey

INDUSTRY	Dirty Cars Received				Cars Cleaned by Shipper Prior to Use				Cars Rejected by Shipper				Improvement over Conditions a Year Ago		
	Range of All Reports — Per Cent	Box Cars — Per Cent Median	Gondolas, Flat Cars — Per Cent Median	Refrigerated, Tank, Others — Per Cent Median	Range of All Reports — Per Cent	Box Cars — Per Cent Median	Gondolas, Flat Cars — Per Cent Median	Refrigerated, Tank, Others — Per Cent Median	Range of All Reports — Per Cent	Box Cars — Per Cent Median	Gondolas, Flat Cars — Per Cent Median	Refrigerated, Tank, Others — Per Cent Median	Considerable — Per Cent	Slight — Per Cent	No — Per Cent
CHEMICAL—Drug, Petroleum, Sand and Gravel	2.00-90	58	10	55	90-100	98	100	98	.....	.....	.....	.....	16	50	34
ELECTRICAL—Appliances and Instruments	2.00-98	46	48	.....	98-100	99	95	.....	0.00-5	0.08	5	.....	.....	75	25
FOOD—Confectionery, Dairy Products, Sugar, Salt, Canning	1.00-25	9.8	10	5	50-100	88	100	99	0.01-10	3.7	.....	1	44	44	12
Grain, Feed and Flour	5.00-80	33.3	.....	.....	80-100	82	.....	.....	0.00-50	12	.....	.....	66.7	.....	33.3
FURNITURE—and Milled Lumber	13.40-90	59	.....	.....	95-100	98	.....	.....	2.00-17.6	8	.....	.....	33	33	33
MANUFACTURING—Automotive and Farm Implements	1.00-80	26	37	.....	98-100	99.8	99.5	.....	0.05-2	0.016	0.05	.....	.....	50	50
General	1.00-100	45	52	.....	60-100	99	100	.....	0.00-1	0.07	.....	.....	11	56	33
Metal	0.05-90	31	65	0.05	99-100	99.5	100	100	0.00-1	0.03	.....	.....	33	33	33
PAPER—News, Kraft, and Paper Products	10.00-25	15	.....	.....	90-100	95	.....	.....	0.02-10	5	.....	.....	33	33	33
WAREHOUSING and Transportation	0.00-98	49	.....	98	0-100	33	.....	0	.....	.....	.....	.....	33	33	33
MISCELLANEOUS—Textile, Tobacco	50.00-80	65	.....	.....	80-99	90	.....	.....	0.00-1	0.03	.....	.....	.....	100	.....
TOTAL All Industries	0.00-100	38	41	70	0-100	90	91	79	0-17.6	3	1.5	0.02	24	46	30

delays incident to reporting and returning dirty cars and waiting for clean ones.

The range of all reports on cleaning dirty cars prior to use varies all the way from zero to 100 per cent. However, the median for box cars amounts to 90 per cent. This figure is slightly higher, 91 per cent, for gondolas and flat cars, and lower for tanks, hoppers, refrigerated cars, and others.

It is interesting to note that the industries having the most trouble with dirty cars, clean the greatest percentage. An outstanding exception is the food industry, and this applies mostly to cars other than box cars.

Only 3% Box Cars Rejected

Comparatively few cars are rejected by shippers. From comments received accompanying these figures, the low number of rejections has nothing to do with the degree of dirtiness but, rather, to the urgency of need of these cars and to the general disinclination for delay by shippers.

One shipper stated, "We only return damaged cars." Another commented, "Unless they leak like a sieve, we use them." Still another reported, "We reject a car when the holes in the floor are big enough for a man's foot to be caught or a truck's wheels to be stuck."

The range of rejections runs from zero to 17.6 per cent. The median for box cars is 3 per cent, 1.5 per cent for gondolas and flat cars, and only .02 per cent for tanks, hoppers, refrigerated cars, and others.

(*Please Turn to Page* 57)

Order picker places filled box on a drag-line truck for movement to sealing section, where box also is labeled

Employes call this a pinball machine, actually it is a conveyor-sorter which routes boxes to one of 15 side tracks

Winged-Foot Delivery Of 'Perishable' Footwear

Assembly-line order handling in office, plus a highly mechanized handling system in the packing and shipping rooms expedites delivery of seasonable footwear items

By **E. E. McLane,** *Traffic Manager, Mishawaka Rubber & Woolen Mfg. Co., Mishawaka, Ind.*

THE average morning mail at the Mishawaka, Ind., plant of Mishawaka Rubber & Woolen Mfg. Co., makers of Ball-Band footwear, brings approximately 1,000 orders for immediate shipment.

By evening, 80 per cent of these orders are on their way to retail shoe outlets all over the country.

This expedited delivery is accomplished by means of a streamlined physical distribution program, which includes assembly-line order handling in the office, and a conveyorized handling system in the packing and shipping rooms.

Because of the highly seasonable nature of footwear, with delays in delivery meaning loss of sales to competitors, each order at Ball-Band is treated as a hot item. A distribution system has been designed similar to systems used by shippers of perishable foodstuffs.

Upper photo shows case being removed from a conveyor sidetrack in the shipping room, where it is loaded on hand truck

Girl in center photo is hand-rolling identification stencils on incoming orders. File contains card and stencil on all customers

Traffic Department clerk routes the order. Over 40,000 cards show rates by all carriers, customer choice, special instructions

On the paper-work end of the system elapsed time on any given order is 18 minutes. This compares to two hours under the old system.

The materials handling system in the packing and shipping room has brought an estimated annual saving of $50,000. This represents approximately 30,000 man-hours.

Fast handling starts when the order is received. A card file includes a card for each customer. This file card holds a small stencil which is hand-rolled onto each order or letter when received. The stencil shows the full name and address of the customer. It also includes the rural delivery route, county, and in some cases the nearest city or town that can be located on a map. A code shows the customer's file reference, salesman's territory number, parcel post zone and class, and other pertinent information.

The order then is checked for numbers, styles, sizes, etc., and checked against stock records to be sure that the goods is available. The order is priced, customer's credit is checked, salesman's commission credited . . . all at a speed quota of about 375 cases an hour.

A belt conveyor transports the order to the traffic department for routing, rating, and an estimate of the shipping weight and costs.

Traffic Function

Keeping an up-to-date rate file on some 50,000 towns, villages, cross-roads, and trading posts is the job for Traffic. Since most shipments of footwear that weigh over 100 lb are prepaid, it is necessary to have tariffs covering rates to every part of the United States.

Twenty four-drawer filing cabinets house one of the most complete tariff files in the Midwest. Combination-rates over unusual junction points or the latest wharfage costs at every port in Alaska—the three full-time rate clerks can determine in advance the full cost of delivery.

Each bill of lading carries the rate or combination of rates when presented to the carrier.

Routing files include point-lists received from more than 4,000 truck lines and most railroads from every state in the Union. When an order is received from a new customer, nothing is left to chance. If he is located in a city or town to which routes are already available, that route is used for the new customer. But to the thousands of rural deliveries, small towns, cross-roads, special attention is given.

Route Selection

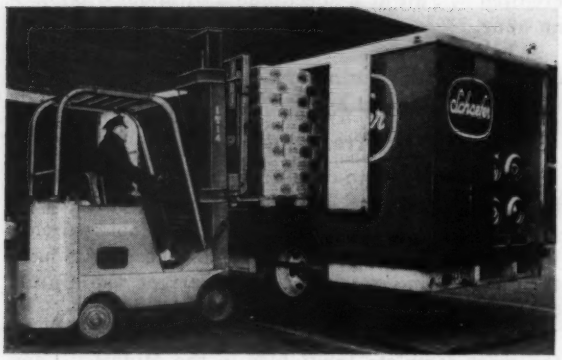
A letter goes out quickly to one or more carriers serving the general vicinity in which the new customer is located. A letter goes to the customer, asking what carrier delivers to his door, or at what nearby destination his shipment may be held for pick-up. Before the shipment leaves the plant, the road has been cleared for speedy delivery to the customer.

The record goes into the files, so that on the next

(*Please Turn to Page* 98)

Brewery Hikes Efficiency With New Style Trucks

Palletization and fork truck handling system coupled with specially designed trailer and route truck cut equipment costs, increased loading speed 28 times over manual method



New closed trailer has skate wheel conveyor built into floor. Pallet load placed at rear is pushed in by next load

New route truck puts two-thirds of floor area 15 in. closer to ground, makes pick-up and delivery easier

WHEN THE F. & M. Schaefer Brewing Co., of Brooklyn, N. Y., one of the world's largest, recently was faced with the problem of keeping up with increased demand for their products, they turned to mechanized materials handling.

A fleet of fork trucks was installed, and the firm began palletizing 50 per cent of their yearly production of 3,500,000 barrels.

In one instance alone, by speeding loading and carrier turn-around, fork trucks cut the number of delivery trucks needed by 15 per cent.

Schaefer engineers also developed a radical new route truck and a novel new trailer to take full advantage of fork truck speed and efficiency.

Schaefer's new route truck has two different floor levels. The floor over the differential is 40 in. from the ground, but those fore and aft are only 25 in. Thus, about two-thirds of the area of the truck floor is 15 in. lower or closer to the ground than in old style bodies.

The truck can be loaded, or unloaded, from the sides as well as from the rear. All this has speeded loading to 28 times as fast as manual methods could load the conventional route truck. Equally important, the lower floor levels have made manual handling much easier for the routemen. Schaefer's new trailer features two skate-wheel conveyors which run along the floor from the rear to the front on either side. A palletload is deposited just inside the doors on one of the two conveyors by fork truck, then pushed further in by each succeeding load, until both rows are filled.

A plywood divider separates the two rows and keeps the loads from catching on each other. Full or partial loads are locked securely in place with two adjustable steel posts to prevent shifting.

The new trailer can be loaded at the rate of about a palletload-a-minute, a record set by the flattop type trailer which it is gradually replacing.•

DA QUICK CALCULATOR for materials handling

Handy Chart for Figuring Weight of Steel Plate When The Length, Thickness, and Width Are Known

By W. F. Schaphorst

BY USE of the chart at right, it is a simple matter to determine the weight of any steel plate. Information needed to determine weight includes three dimensions—length, width, and thickness.

The example illustrated gives the weight of a steel plate one-quarter in. thick, 30 ft long, and 12 in. wide.

A straight line is run from Column A (thickness) to Column E (length). From the point of intersection of this line and Column B, run another straight line to Column D (width).

The intersection of this second line with Column C gives the correct weight in pounds.

Thus, in the example, a line is run from 0.25 in Column A to 360 (inches in 30 ft) in Column E.

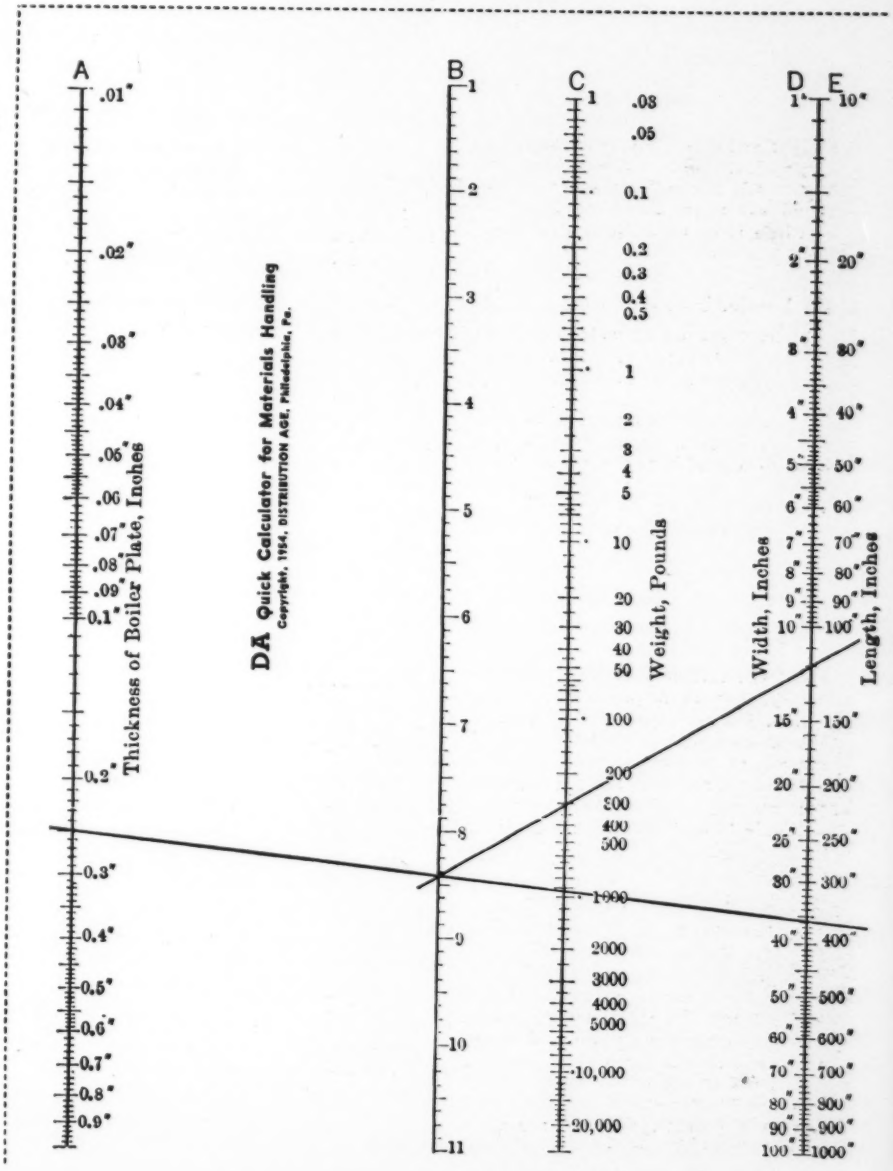
From the point of intersection with Column B, a second line is run to the figure 12 in Column D.

The intersection of this line with Column C tells us that the plate weighs slightly in excess of 300 lb.

The chart range is wide enough to accommodate dimensions of most common sizes of steel plate.

Thicknesses vary from .01 to 1 in. Lengths vary from 10 in. to 1,000 in. Widths vary from 1 in. to 100 in. The weight column runs from .08 to 25,000 lb.

It is suggested that you do some experimenting with the Quick Calculator. By keeping it in a convenient place, and by referring to it often, you should be able to apply it to your own materials handling and storage problems.



FREE Literature

Moving & Storage Supplies

Elkay Products Co. announces a Silver Anniversary 1954 Catalog No. 106, listing over 1,000 items that are essential for safer moving and storage, increase furniture sales, easier piano handling and fewer appliance damages.

Circle 11 on Card Facing Page 51

Visual Education Aids

Railroads, shippers and traffic organizations can avail themselves of the visual education aids from the Union Pacific Railroad. Films on freight and damage prevention, posters, and the bi-monthly publication, "News and Views," are a few of the visual education aids available.

Circle 12 on Card Facing Page 51

DF Loader Users Manual

Instructions on how to load and unload DF Loader-equipped box cars are now available to shippers and railroads in a new booklet prepared by Evans Products Co. How to plan a load; how to double-deck lading; how to brace heavy load sections; and how to stow extra equipment are a few of the points covered.

Circle 13 on Card Facing Page 51

Refrigerated Warehouses

A pamphlet, presenting in questions and answers many unknown facts about the refrigerated warehouse industry, has been published by the National Association of Refrigerated Warehouses. The pamphlet will be of service to warehousemen, salesmen, consumers and other interested parties.

Circle 14 on Card Facing Page 51

Telescopic Boom Conveyor

A bulletin from Alvey Conveyor Mfg. Co. illustrates with a blueprint, diagrams and photographs their telescopic boom conveyor that extends and retracts from loading dock into tractor-trailers for handling of cases, cartons and similar type packages. When not in use the telescopic boom can be withdrawn back into the building in a position clear of the dock aisle.

Circle 15 on Card Facing Page 51

Adjustable Ramp

The Hohl Adjustable Ramp, manufactured by Hohl Machine & Conveyor Co., can be installed in your present building without excavation. In new buildings shallow pits can be provided so the ramp can be adjustable at all levels to an angle of 11 deg above or below the floor line. Package and bulk systems and a self-supporting jib crane are also illustrated in this brochure.

Circle 16 on Card Facing Page 51

Rolling Doors

In the new Kinnear catalog on rolling doors is helpful information comparing the advantages of the different styles of upward-acting types of doors, plus dimensional information necessary in planning the use of such doors.

Circle 17 on Card Facing Page 51

Handling Magazine

The latest issue of *The Lever*, the Lewis-Shepard magazine, is off press. Fully illustrated, this issue features the new trucks recently announced. There are many interesting photographs of unusual applications of both hand and electric products fully described.

Circle 18 on Card Facing Page 51

Gas Fork Lift Trucks

Three models of the "Dynamotive," gas fork lift truck with electric transmission, are described in a new brochure published by the Automatic Transportation Co. Complete specifications are given for 4, 5, and 6,000-lb capacity models, which feature an electric, infinite step transmission.

Circle 19 on Card Facing Page 51

Automatic Pallet Loading

The Alvey Conveyor Manufacturing Co. has released a bulletin on the Automatic Pallet Loading Machine Series 200. The bulletin describes and illustrates the unique adaptability of the Series 200 machine. Photographs show it performing a number of palletizing operations.

Circle 20 on Card Facing Page 51

Tractor Train Self-Coupler

The Safety Self-Coupler is adaptable to any caster-type trailer, states the new bulletin from Mercury Manufacturing Co. Manual functions are reduced to a minimum. There is no necessity for a man to get between a tractor and a loaded trailer or between two loaded trailers. Also, tractor-trailer trains can run at any speed over grades and around acute angles with no danger of becoming uncoupled.

Circle 21 on Card Facing Page 51

No. 4 Booklet of The Library of Know-How

"Material Handling—Organization, The Engineering and Training," the fourth in the Material Handling Institute's Library of Know-How series, has just been published.

This booklet is prepared, primarily, for those who are interested in accelerating the organized processes for controlling and reducing handling costs. It presents the functional operations involved in material handling, and the various points where authority and responsibility rest.

There is no scarcity of ideas for better handling. The real scarcity is a lack of organized processes by which these ideas can be evaluated and used. The booklet discusses various ways to coordinate your materials handling functions. Topics include: "Organization Principles," "Organization Rules," "Material Handling Functions," "The Engineering Function," "The Operating Function," "The Training Function," "Responsibility and Authority."

Copies of this new guide to better materials handling will be sent to readers upon request with the compliments of DISTRIBUTION AGE.

Circle 35 on Card Facing Page 51

For prompt service, use the postage-free postcard provided here for your convenience in securing FREE LITERATURE and NEW PRODUCTS information described in this issue of DISTRIBUTION AGE. All material FREE, unless otherwise noted, as in the case of text books and some pamphlets.

Crawler Catalog

"Terratracs and their Equipment—the Crawlers with the Anti-friction Track Roller Bearings," is the title of a new catalog from **American Tractor Corp.** The catalog illustrates the fact that all models of Terratrac crawlers are available with bulldozers, angledozers, digging loaders and winches.

Circle 22 on Card Facing Page 51

All-Steel Platforms

An illustrated folder from **Ballymore Co.** describes all-steel portable and stationary platforms custom-fitted to each work requirement. Platforms for large equipment repair, production operations, maintenance, and other uses are described.

Circle 23 on Card Facing Page 51

Bulk Handling Conveyor

Tube-Veyor, a product of **Prab Conveyors, Inc.**, is described in Bulletin R-20 as a totally enclosed bulk material handling conveyor for flour, chips, sludge, sand, grain, coal, starch, salt, etc., with a two-directional chain to convey in any direction. It handles materials at high temperatures and can operate in more than one direction without transfer points.

Circle 24 on Card Facing Page 51

Safety Tire Alarm

A new safety device that automatically warns the driver in the cab of truck, tractor, or other similar vehicle, when a tire becomes under-inflated is described in a bulletin from **Como Mfg. Corp.** Known as Tire-Alarm, the new unit is mounted on the brake plate, and only one alarm switch is required to protect both tires of dual wheels.

Circle 25 on Card Facing Page 51

Pallet Economy

A series of folders from **Pallet Production Co.** outline types of pallets that will prove the most economical in cost, length of use, capacity, and safety. Case histories further illustrate pallet economy experienced by numerous industrial firms and warehouses.

Circle 26 on Card Facing Page 51

Good Traffic Management

"Getting the Most from Traffic Management" is the subject of a study of traffic department practices in Indiana businesses and what they do to save dollars and improve services. It is the product of the combined efforts of the Indiana University, School of Business and numerous industrial firms, transportation organizations and traffic managers.

Circle 27 on Card Facing Page 51

Shock-Absorbing Casters

A new 20-page catalog on the "Floating-Hub" shock-absorbing casters has been published by **The Bassick Co.** The unique features of the floating Hub caster, types of casters and mountings now available as standard production, and load ratings for each type and size are included in the new catalog.

Circle 28 on Card Facing Page 51

BOOKS

Handling Equipment Manual

Complete specifications on 723 different basic industrial truck models, which represents an increase of about 75 per cent over last year's tables, are included in the 1954 edition of *Handling Equipment Manual* published by DISTRIBUTION AGE.

The DA Master Chart and Equipment Selection Guide has been expanded to include a 12-page Application Guide. The Chart and Guide are arranged by basic operational functions which will be of value to experienced handling engineers, traffic managers, transportation directors and others, with or without experience, who are concerned with physical distribution of goods.

The *Manual* was designed to serve as a materials handling book for persons planning installation of new handling systems, renovation of old systems, additions to existing systems, or systems analyses. DISTRIBUTION AGE, Chestnut and 56th Sts., Philadelphia 3, Pa., 120 pp, $1.50.

Unitized Steel Shelving

Burroughs Mfg. Co. has prepared a brochure on its new Unitized Flexi Steel Shelving. Shelf units are easily assembled without bolts or special tools. Any shelf within a unit can be moved without disturbing adjacent shelves, or any complete unit can be moved without disturbing adjacent units.

Circle 29 on Card Facing Page 51

Bulk-Test Service

A new 32-page bulletin entitled "Engineered Materials Handling Systems" is offered by **Gifford-Wood Co.** The bulletin describes and illustrates various handling systems for bulk materials, such as chemicals, chips, bulk-grain, coal.

Circle 30 on Card Facing Page 51

Steel Pallets

Republic Steel Corp. announces the publication of a new four-page folder describing its steel pallets, double face, semidouble face, and single face. Designed to eliminate maintenance, Republic steel pallets also have no sharp edges or projections.

Circle 31 on Card Facing Page 51

Truck Accident Reporting

A four-color booklet issued by **Liberty Mutual Insurance Co.** instructs truck drivers in steps to take should they become involved in an accident. "The Case of the Accused Driver" uses the comic book technique to emphasize driver courtesy, co-operation with investigating police, proper care of persons injured, full information about accident details, witnesses, measurements and other facts needed.

Circle 32 on Card Facing Page 51

Heavy Duty Fork Truck

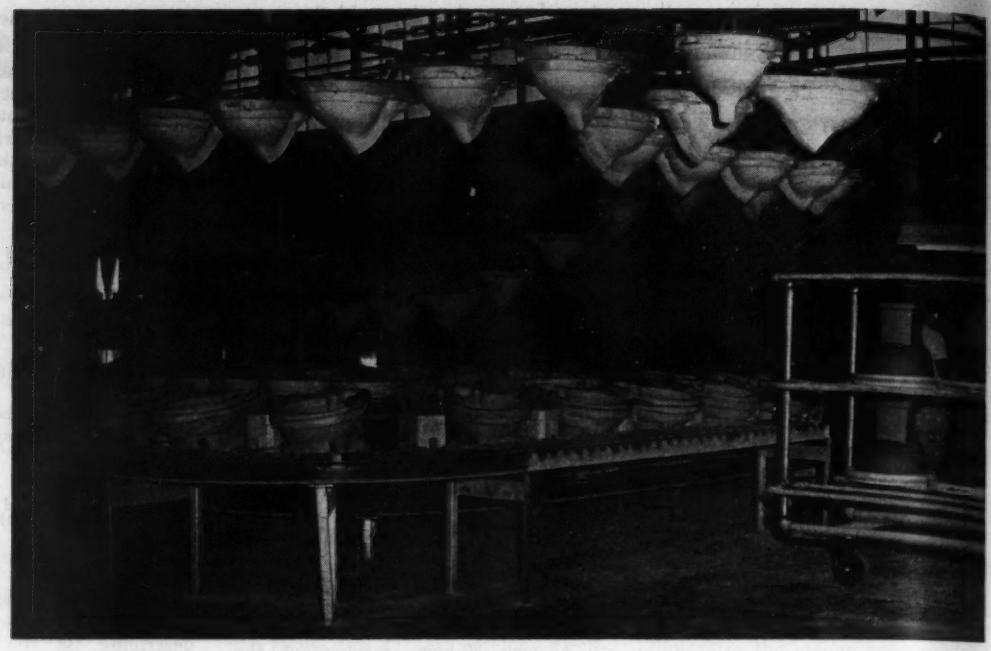
The Model F-39T10 electric powered, 10,000-lb capacity fork truck is illustrated and described in a folder released by **The Elwell-Parker Electric Co.** More than a dozen photographs show the truck in a wide variety of applications, plus model shots and detailed view of components.

Circle 33 on Card Facing Page 51

Bungling Burglars

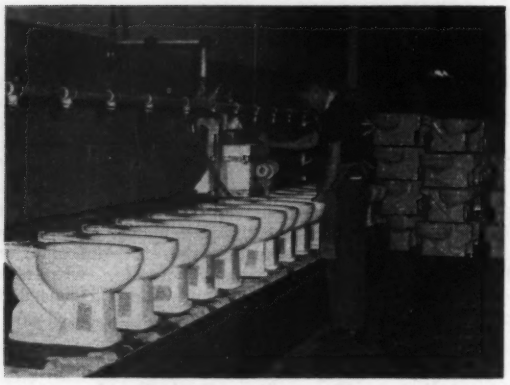
A reprint from the May 29th issue of the *Saturday Evening Post*, titled "They Make Life Tough for Burglars," by Alan Hynd, describes the activities of **American District Telegraph Co.** scientists to develop new applications of electricity and electronics in the battle to protect American commerce and industry.

Circle 34 on Card Facing Page 51

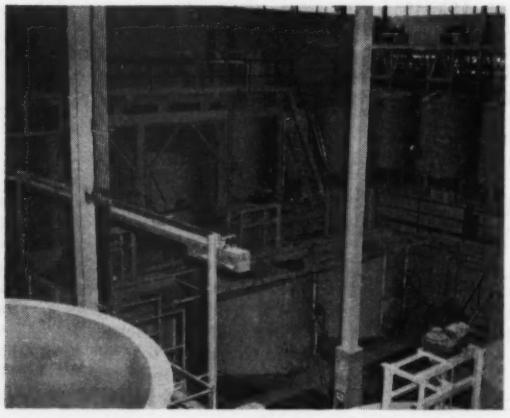


Overhead, roller conveyors carry slip castings to and through ovens

Ceramic plumbing fixtures are water tested with this automatic equipment



Slip can be piped from any one of these slip house storage tanks to production stations throughout plant



Conveyors Cut

Straight-line production with more than

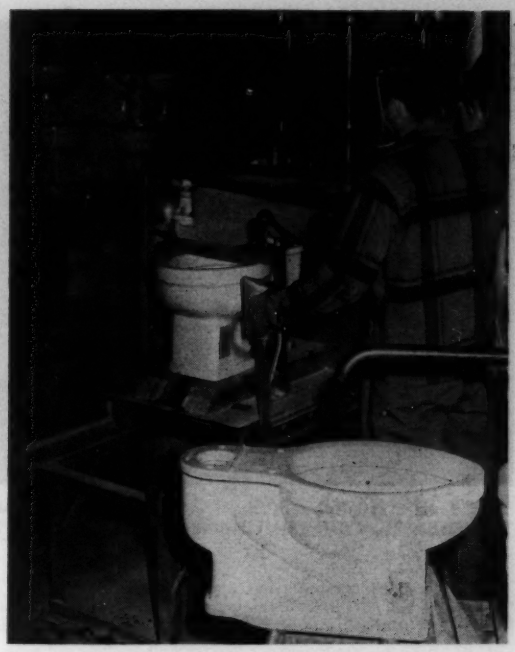
A FEW ceramic producers have, in recent years, been able to gain a distinct competitive advantage by adapting the principles of modern handling to their operations.

One of the newest of these firms is the Crane-Pacific Division of Crane Co., Colton, Cal., where ceramic plumbing fixtures are being mass-produced in 186,000 sq ft of plant space with a crew of only 200 employes working two shifts daily.

Production Operation

Crane-Pacific's production operations consist briefly of dispersing raw clay materials in water, casting the resultant "slip" in plaster molds, and firing or fusing dehydrated slip casts with ceramic-kiln equipment. This process involves the effective application of many handling concepts which have not yet become standard in the

Workers check production molds mounted on roller conveyor. Molds are automatically loaded by means of pneumatic fixture



Right: Grinding equipment is used here to machine critical ceramic dimensions in the Crane-Pacific plant, in Colton, Cal.

Costs In Ceramic Production

6,800 ft of roller and overhead conveyor puts this firm to competitive advantage

ancient ceramic industry.

Where clay slip normally would be prepared with a mechanical agitator in the immediate vicinity of molds for each production item, Crane-Pacific has a large centralized slip house with tile-lined tanks for the mixing and storing of raw materials.

This enables specialized personnel to prepare all the necessary casting slip, without interrupting production operations when it is necessary to clean tanks, repair mixing machinery, or prepare new batches. Slip can be piped from any one of several storage tanks in the slip house to production stations throughout the plant.

Roller Conveyors

Similarly, where it would be standard practice to align plaster molds on the factory floor for manual loading purposes, Crane-Pacific has roller conveyors for the purpose of passing each mold under an automatic loading fixture. The fixture is pneumatically powered so as to fill the mold cavity to a certain level without human assistance.

In addition to reducing the cost of labor in the preliminary loading of molds, the conveyors simplify handling problems because their operations are timed so that each mold will reach a suitable unloading station soon after the cast therein is dehydrated enough to be handled.

In order to simplify mold designs and reduce casting defects, arrangements have been made to cast some products as two or more separate parts per unit. The rims and bowls of toilets are separately cast. Parts thus produced are assembled, so that they can be fired as integral articles.

Dehydrated casts or assemblies are separated from their molds at

(*Please Turn to Page* 60)

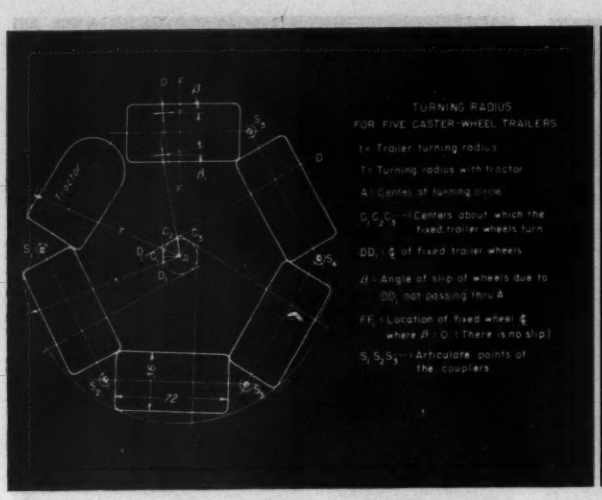

TURNING RADIUS
FOR FIVE CASTER-WHEEL TRAILERS
T = Trailer turning radius
T = Turning radius with tractor
A = Center of turning circle
C1 C2 C3 = Centers about which the fixed trailer wheels turn
DD1 = ℄ of fixed trailer wheels
β = Angle of slip of wheels due to DD1 not passing thru A
FF1 = Location of fixed wheel ℄ where β = 0 (There is no slip)
S1 S2 S3 = Articulate points of the couplers
72

Fig. 1: If fixed axles of these caster-wheel trailers were at FF_1 rather than DD_1, they would turn thru vertical axis A

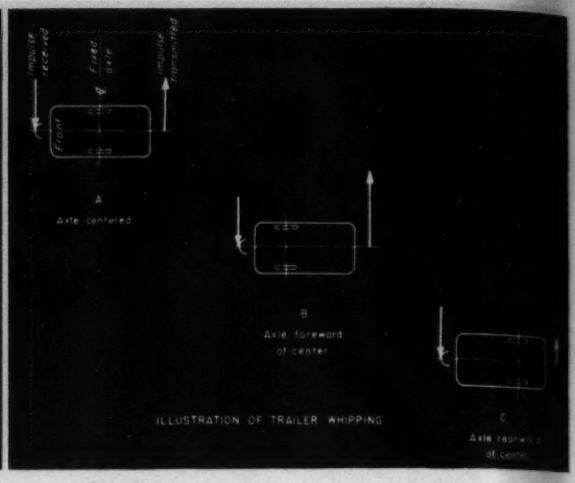
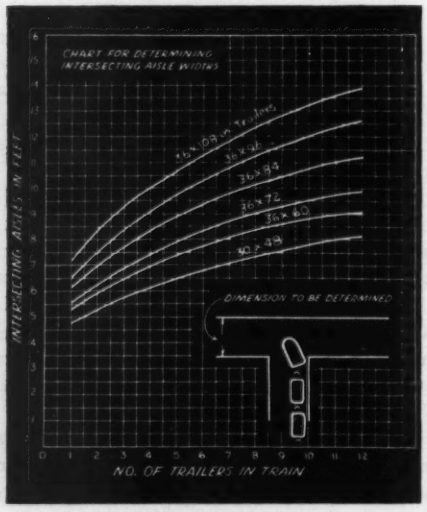


Fig. 2: With fixed axle rear of center (C) initial force from tractor is diminished as it is transmitted to trailer

Trailability Determines Aisle

Major factor in determining minimum aisle widths in tractor-trailer systems is trailability — ability of a train to approximate original tractor path

Fig. 5: Recommended minimum intersecting aisle widths for caster-wheel trailer train



ONE OF the major factors determining minimum aisle widths necessary for an in-plant tractor-trailer system is the ability of the train of trailers to approximate the initial path of the tractor. This trailability depends mainly upon the relative positions of the fixed wheels of the trailer and the articulate points of the couplers.

Basic Type Trailers

There are three basic types of industrial trailers. Each gets its name from the wheel suspension used to steer it and each trails relatively effectively. The types are: The caster-wheel steer trailer, the fifth-wheel steer trailer, and the four-wheel steer trailer.

The caster-wheel steer trailer, developed from the caster-wheel hand truck, consists of a platform mounted on four wheels. Its front wheels are mounted in swivel caster assemblies. Rear wheels are mounted on a fixed axle and usually are larger than the caster wheels. They carry the bulk of the load.

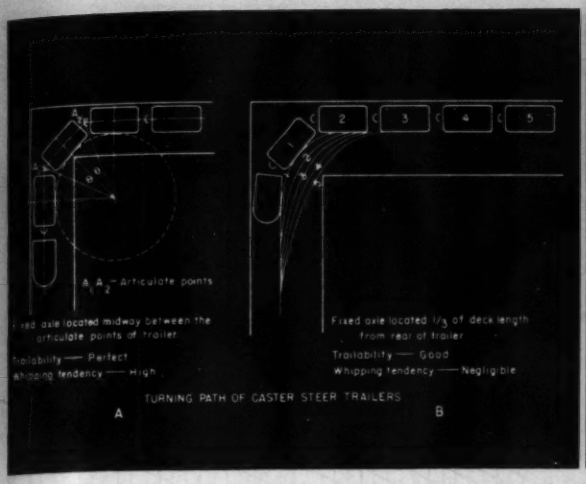

A, A2 = Articulate points
Fixed axle located midway between the articulate points of trailer
Trailability — Perfect
Whipping tendency — High
Fixed axle located 1/3 of deck length from rear of trailer
Trailability — Good
Whipping tendency — Negligible
TURNING PATH OF CASTER STEER TRAILERS
A
B

Fig. 3: Whipping tendency is almost eliminated and trailability is good when fixed axle is moved rear of center (B)

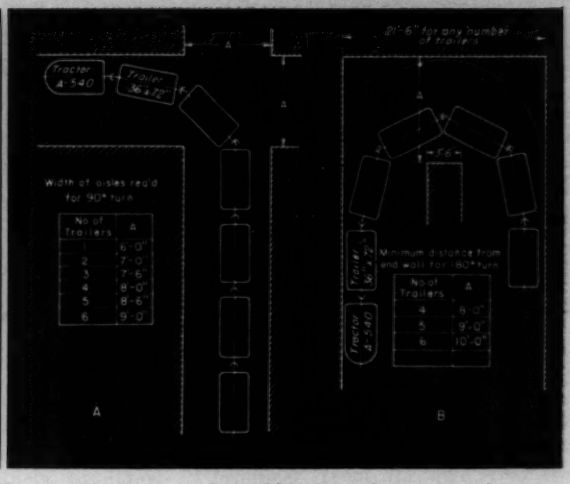
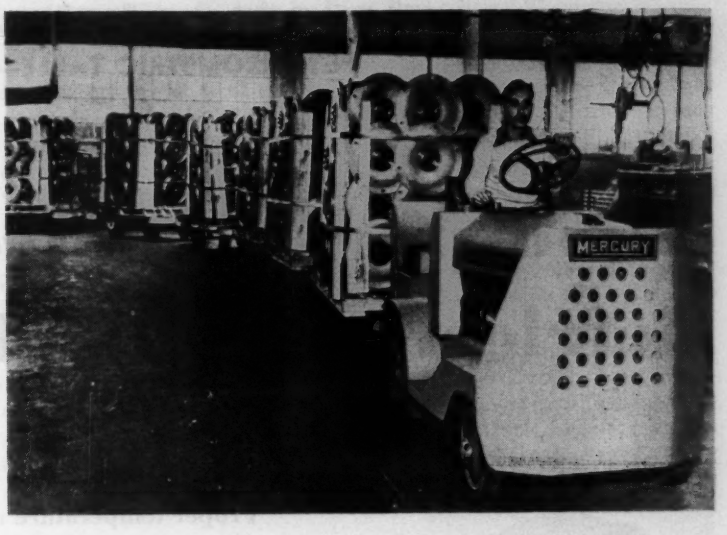


Fig. 4: Minimum aisle widths depend on size of tractor and trailer, type wheel suspension, and number of trailers

Fig. 6: Beyond certain number of trailers, aisle widths for practical purposes remain the same, since maximum coupler turning angle is reached



Widths

By John J. Sichman
Assistant Chief Engineer
Mercury Manufacturing Co.
Chicago, Illinois

The caster-wheel trailer turns by swiveling on its front caster wheels and pivoting about a vertical axis whose location changes from a position midway between the fixed rear wheels, as when the trailer is turned by hand, to a position along the centerline of the fixed axle where it is coincident with the instantaneous center, as when it tracks or trails at the minimum turning radius of the train.

The five caster-wheel steer trailers in the train shown in Fig. 1 turn by pivoting about instantaneous vertical axes whose centers are located at C_1, C_2, etc. If the fixed axles of these trailers were located at FF_1 rather than DD_1, the trailers would turn about a vertical axis through A.

Caster-wheel steer trailers are moved easily by hand and can be turned in very confined spaces. In addition, a train made up of these trailers will trail highly accurately. For all-purpose work, the caster-wheel trailer is probably superior to any other.

Fifth-Wheel Steer

The second kind of trailer, the fifth-wheel steer type, generally has four equal-sized wheels. Its front steering wheels are attached to the platform by a wagon-type fifth wheel. These trailers steer in the same manner as a farm wagon or a dray wagon and are modifications of this type of vehicle. The fifth-wheel trailer is particularly well suited for heavy loads and the hardest of service.

However, a train of these trailers will not trail as accurately as a train of caster-wheel trailers and is not reversible. In addition, fifth-wheel steer trailers are hard to turn by hand in confined spaces. They are difficult to back up with a tractor because double pivot

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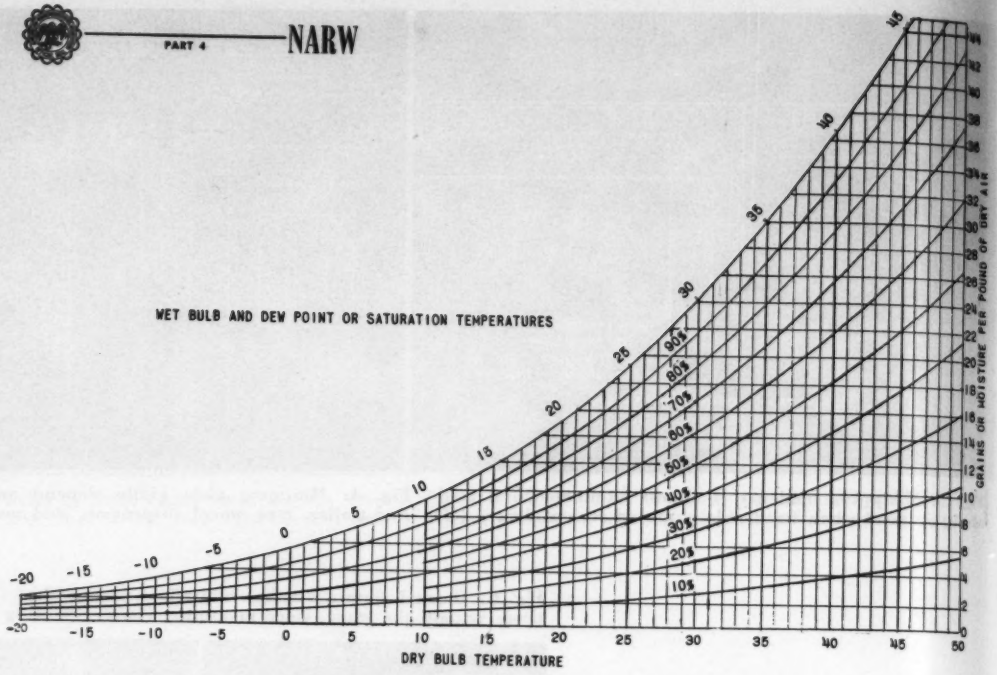


PSYCHROMETRIC TABLE—Low Temperatures

Atmospheric Control In Refrigerated Warehouses

Proper temperature and humidity control is the key to maintaining quality, retarding bacteria and mold

By Regis Gubser

Vice President of Engineering
California Consumers Corp.
Vice President
National Assn. of Practical Refrigerating Engineers

IN ITS 60-year history, the refrigerated warehousing industry has determined the most advantageous temperatures and humidities at which to store all types of food products to retain maximum food value and quality.

These temperature and humidity standards have been arrived at with the assistance of the U. S. Department of Agriculture, private research, and the Refrigeration Research Foundation, a unit sponsored by the industry.

As is well known, reduction and control of temperatures below those normally encountered by foods, helps preserve the foods. Since most fruits and vegetables are living plants, and continue to live and ripen quickly in storage, reduction of temperature is used to slow this process.

Lower temperatures greatly re-

Three types of wet and dry bulb thermometers and two commercial units for measuring temperature, humidity

A typical cold storage room, with straight pipe coil evaporators. Coils could be suspended from the ceiling

duce the respiration rate. This materially lengthens the life of the stored foods. In addition, of course, action of bacteria and mold, both of which cause fruit and vegetable decay, is slowed down or stopped.

It has been found that not all fruits and vegetables should be cooled to the same temperature. Therefore, refrigerated warehousemen must supply a number of rooms, each with its proper temperature, so that the maximum degree of preservation can be accomplished for each product or type of product.

Below Freezing Storage

Science has shown that such items as meat, poultry, and sea foods can best be preserved for long periods of time by lowering their temperature considerably below freezing points of the product involved. Temperatures substantially below freezing inactivate bacteria, yeast, and molds, which cause products to deteriorate.

Reduction of temperature today is accomplished by mechanical refrigeration. Mechanical power is employed to pump heat out of an insulated space. This is done by the evaporation of a fluid refrigerant within a closed vessel called the evaporator, located in the area being cooled.

The balance of the refrigeration cycle consists of reliquefaction of the fluid in another vessel called the condenser, located outside of the insulated space. The lowest temperature obtainable in any refrigerator is limited by the kind of refrigerant, and pressure maintained in the evaporator.

The amount of heat to be removed from the insulated space is dependent upon the amount of product in the space, the temperature at which it is brought into the space, the amount of heat it produces from its own respiration, plus the heat leakage into the space. The removal of this heat is regulated by the size of the evaporator and the quantity of refrigerant evaporated per unit of time.

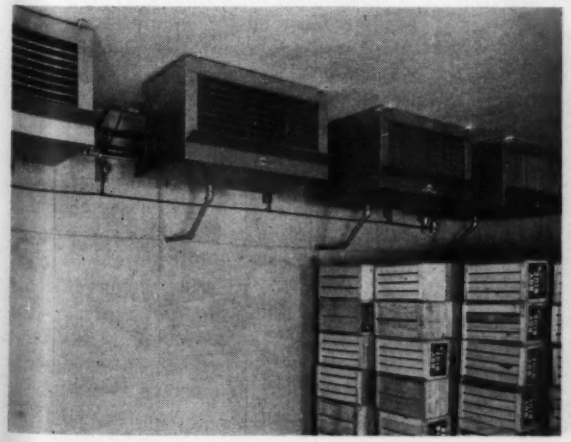
Evaporator Forms

The evaporator itself may take any one of several forms. It may be a simple pipe coil suspended from the ceiling or wall, or pipe coils placed in an enclosed space adjacent to or in the room.

It may be made up in flat plates in which the refrigerant is circulated. These could be used similar to the pipe coils, or they could be made in the form of shelves on which the product is stored. Another popular form of an evaporator is a unit cooler, or a forced

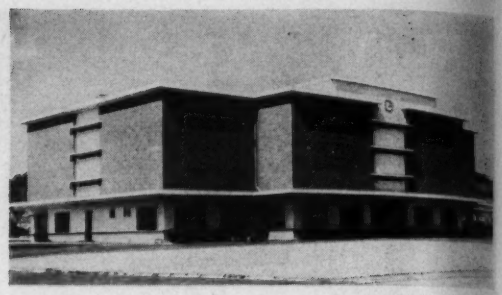
(*Please Turn to Page* 56)

An example of a multiple installation of ceiling type unit coolers. Fans in units distribute air in room



A typical floor type room cooler of the forced convection type. Units are manufactured in various sizes

The dusty wine cellar has been replaced by this modern electronically controlled storage center — distribution point for 2½ million gal of Europe's choice wines



Constructed in the form of a cross, 66 x 169 ft, five floors, 176 tanks hold 2½ million gal of wine

ROUEN
Streamlines Wine Distribution

View from entrance showing three galleries and basement containing storage tanks, offices of director and importers; stairs lead to storage

By John Grindrod

DA European Correspondent

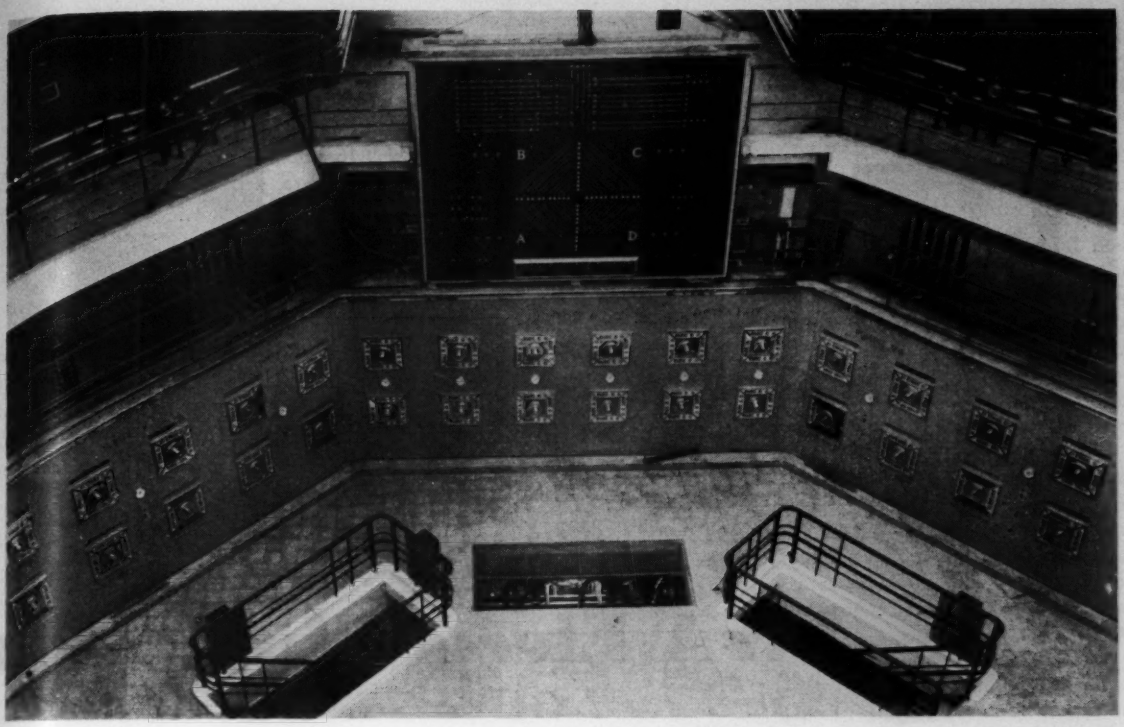
DELICATE handling of dusty bottles of wines in damp wineries has been replaced by modern methods of handling and distribution to slake the world's growing thirst for European wines.

2½ Million Gal Capacity

Constructed at the Port of Rouen, a great wine-importing and distribution center for the Paris region of France, is a modern storage building utilizing the latest storage methods for the wines from Southern France, Portugal, Spain and Algeria. Erected by the Chamber of Commerce, the building now provides accommodation for many large and small wholesale and distributing firms. The new storage center has a capacity of 96,000 hectoliters (1 hectoliter = 26.418 gals), equivalent to over 2½ million gallons.

Together with the existing bulk storage of 72,000 hl, there is now accommodation for nearly 170,000 hl of wine at Rouen—almost 4½ million gal.

These modern and unconventional methods of handling and storing wine at Rouen developed from the need for quicker and cheaper means of distributing the wine harvest of Algeria, whose growth has been phenomenal



Every possible combination of inter-tank connection can be made by controller operating electronic panel above

since the early part of the present century.

Casks Formerly Used

It had been the custom to transport wine from Algeria to France in half-hogsheads. With the rapid growth in quantity of this Algerian product, such a method became uneconomical. Apart from storage problems at the port, there also was the difficulty of stowage aboard ship, and the job of returning empty casks, a costly and cumbersome operation. In 1936 the first wine tanker was built to transport the Algerian wine in bulk—the beginning of modern wine transporting.

During World War II, the Algerian grape harvest was considerably less than normal for a number of reasons, including shortage of fertilizers. Also, many of the half-hogshead casks still in use were destroyed or lost. When, in the post-war years, the annual production of Algerian wine again reached the 14 million hl mark, with every prospect of attaining an average yearly figure of 20 million hl (the pre-war average), the transport position again called for additional wine tankers. Also, tanks were installed in a number of ships on the North African service.

In 1946 the wine storage was constructed at the Port of Rouen to accommodate this rapid growth of the Algerian vineyards.

Five Floors

Constructed in the form of a cross, the storage is on a rectangular site about 169 ft by 66 ft. The building consists of five floors —a basement, groundfloor, and three upper levels. From the center of the building four identical blocks branch out at right angles to each other to form the arms of the cross. Each block carries the same number of chambers and rooms on either side of its hall or gallery.

In all there are 176 storage tanks in the basement, second, third and fourth levels, with a total capacity of 96,000 hl—equivalent to over 2½ million gallons. The tanks in the basement are used chiefly as reception and transit tanks while the main storage tanks are on the other three floors.

At the basement and upper levels, the tanks are flanked by gangways surrounding the center which give access to the various tanks.

Also, in the basement at the center of the building are 15 small tanks with a total capacity of 1,294 hl which receive dregs and clearances from the piping after a transfer has been made from one tank to another. These are taken up by small pumps and reintegrated into the principal tanks so that an importer receives the full delivery to which he is entitled.

On the ground floor is the warehouse for temporary storage of wine still transported by cask, two groups of offices (one on either side of the main entrance), the offices of the manager, customs and excise authorities, sample rooms, etc.

Facing the main entrance are large switchboards and panels from which the working of the pumps is controlled in accordance with the telephoned orders of the

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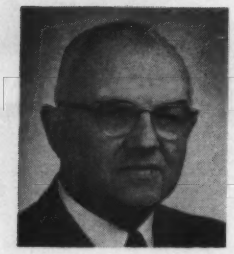
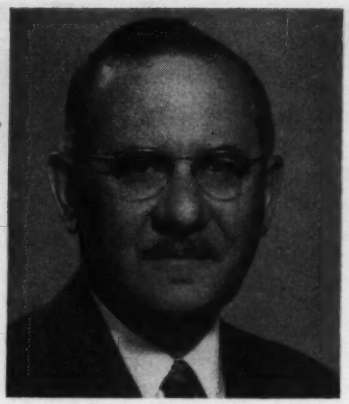
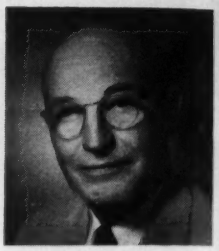


M. W. Young
NARW President



A. B. Efroymson
General President



R. M. King
Merchandise Div. President

AWA Elects Efroymson

Close to 800 attend 63rd annual gathering in Florida—King and

A FULL complement of storage and distribution problems—from sales technique to government participation, and from technological improvements to a look at the future—were discussed April 25-29 at the 63rd Annual Meeting of the American Warehousemen's Association.

Close to 800 warehousemen from all sections of the country attended the 5-day gathering in Boca Raton, Fla. The convention combined general sessions with separate programs conducted by the Merchandise Division and the National Association of Refrigerated Warehousemen.

Principal speakers at the opening general session included Senator George A. Smathers, Jr., of Florida, and A. B. Drake, newly appointed director of Storage, Distribution and Disposal, Office of the Assistant Secretary of Defense. Drake is former president of the Lehigh Warehouse and Transportation Co., Newark, N, J.

In speaking of the Defense Department reorganization, Drake urged that the AWA organize immediately to select men of ability from its ranks to fill key government jobs as vacancies occur.

Later in the week President Long appointed a committee to study the question of members making themselves available for such government service (see box below).

Defense Committee

The following members were appointed to the Government Advisory Committee (see above):

B. A. Dickson, Philadelphia; F. D. Bateman, Chicago; Chas. Adams, Jersey City; I. S. Culver, San Francisco; G. Ericson, Chicago; Ted Dodds, Kansas City; C. W. Drake, Newark; W. Hudlow, Chattanooga, and Mr. Long and Mr. Efroymson.

Opening business sessions of both groups on Monday were devoted to remarks and reports of officers and committees. The NARW group on Monday also heard an address by Dr. Bernard E. Proctor, of MIT, on "Irradiation of Foods—Boon or Enigma."

Division Program

The first two acts of a 3-act dramatization, "Quality Service Our Challenge," were presented at the Merchandise Div. session on Tuesday. The cast included: J. B. Craddock, Fort Worth, Tex.; J. P. Young, St. Louis, Mo.; G. M. McConnell, Jr., Cleveland, Ohio; J. C. Miller, Little Falls, N. Y.; F. E. Stevens, Jr. Atlanta, Ga.; S. T. Heffner, Chicago, Ill.; C. W. Drake, Newark, N. J., and A. D. Walters and Miss A. Ruth Sommer, of the Chicago staff.

Officers Elected at AWA's 63rd Annual Meeting

General Officers

President—A. B. Efroymson, Cleveland, Ohio
Vice President—I. S. Culver, San Francisco, Cal.
Treasurer—W. A. Morse, Minneapolis, Minn.

Merchandise Div.

Pres.—R. M. King, Syracuse, N. Y.
V.P.—C. J. LaMothe, St. Louis, Mo.
Trmeas.—M. A. Buckey, Philadelphia, Pa.
Executive Committeemen — James O'Halloran, Boston, Mass.; Robert A. Robertson, Orlando, Fla.; Floyd D. Bateman, Chicago, Ill.

NARW

Pres.—M. W. Young, San Francisco, Cal.
V.P.—F. D. Newell, Minneapolis, Minn.
Treas.—John Dozier, Houston, Tex.
Executive Committeemen—Chas. Henry, Atlanta, Ga.; A. W. Oakley, Jersey City, N. J.; W. E. Ready, Indianapolis, Ind.; Gilbert Stecker, Louisville, Ky.

At Annual Meeting

Young new presidents of Merchandise Division, NARW

Subjects covered in the three acts included: Stock reports and invoice forms, machine posting, palletization, insect infestation, fire protection, clean cars, perfect shipping, sales, promotion, advertising, employe relations, and safety.

NARW on Tuesday presented a series of three panel discussions. Subjects and panel moderators follow: "Warehouse Losses, Damage, Pilferage and Claims," Howard K. Upham, Memphis, Tenn.; "Repair and Maintenance," William Fleig, Evansville, Ind.; "The Customers Speak," Watson Rogers, president of the National Food Brokers Association.

The Customers Speak panel was made up of experts from warehouse user industries, including frozen food packers, distributors, brokers, meat packers and poultry processors. It was a give and take session on how the warehouseman can better serve his customers.

Charles Henry, Atlanta, Ga., discussed the Taft-Hartley Act and Labor Pains, also on Tuesday. Wednesday's NARW session also was devoted to panel discussions, with the following subjects and moderators featured:

"New Business—Where Is It, How To Get It," F. D. Newell, Jr., Minneapolis, Minn.; "You Have To Sell It To Fill It," George S. Jones, managing director of the Air Conditioning and Refrigeration Institute, and "The Latest in Materials Handling," C. A. Bowen, Jr., Nashville, Tenn.

Little Retires

The Merchandise Division announced the retirement of Wilson V. Little, executive secretary, as of May 1 (DA, May, Page 13).

Mr. Little will be on leave of absence with the title of executive secretary emeritus for the remainder of the year. He is being succeeded by Donald E. Horton, assistant for the past eight years.

Uniform Code

C. O. Butler, Chicago, reported on the Uniform Commercial Code at the Merchandise Div. meeting on Wednesday. Butler, chairman of the Code Committee, said that generally speaking, state action on the Code will await development in Pennsylvania, where the code has been adopted to become effective July 1.

Other Wednesday presentations within the Merchandise Div. included a report on government storage policies by F. D. Bateman, Chicago, chairman of the Committee on Government Relations; and a panel entitled "I Want an Answer," moderated by Mr. King.

On Thursday the Merchandise Div. presented another dramatization, "You Are the Jury," in which warehouse liability cases were discussed in an informal courtroom session. This was followed by an open forum, "Your Industry's Sounding Board," led by O. S. Anderson, Kansas City, Mo., chairman of the Cost Accounting Committee.

Jet Air Freezing

On Thursday the NARW heard a talk on "Jet Air Freezing," presented by Edward Simons, San Francisco consulting engineer. The final NARW forum was entitled "Office Procedures, Forms, Insurance, Housekeeping, Dock Congestion, and FDA Inspections." It was moderated by Harlan J. Nissen, Los Angeles, Cal. The forum was followed by a talk on "Cost Finding" by W. C. Baker, chairman of the Cost Committee.

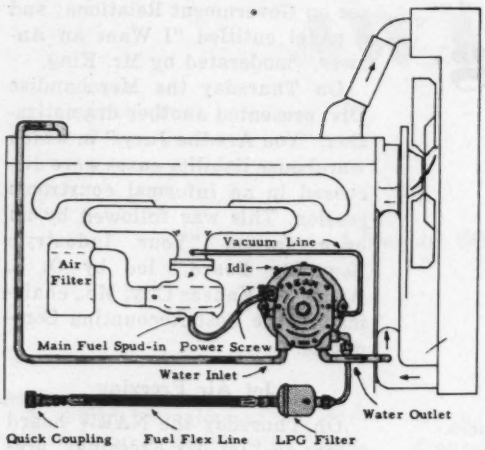
Resolutions continuing the Uniform Commercial Codes Committee and broadening the scope of the Government Relations Committee to include activities of all federal departments using storage space, were adopted by the Merchandise Div.

Also, at the Farewell Luncheon, a resolution was adopted calling for a return to a flexible price support program. A similar resolution was adopted by the NARW. •

Parable On Power:

Switch To LP-Gas Proves

Some warehousemen report annual maintenance savings of $500 per truck, 6,000 hours between oil changes, a saving of 7 to 10¢ per gallon on fuel with butane or propane powered industrial trucks



Above: Diagrammatic sketch of LP-Gas conversion

Five-gallon vertical tank mounted beside driver, held by spring clamps, it rests on welded platform

By James Joseph
Bureau Chief
Western Round-Up

LIQUEFIED petroleum-gas powered industrial trucks, gaining in use in the industrial field, are making inroads in the warehousing industry.

In certain instances and under certain conditions, some warehousemen have reported great success in the switch from conventional gasoline or electric fork truck to LP-Gas powered trucks.

More than 100 LP-fueled trucks are reported in the Los Angeles area. Most of these are in use in warehouse operations. Safety and economy of operations are the principal benefits cited by those satisfied by the conversion.

Limited Maintenance

Some warehousemen report annual maintenance savings of as much as $500 a truck. As many as 6000 hours between oil changes is not uncommon. Users also claim a 7¢ to 10¢ a gallon fuel saving over gasoline. With such savings, the LP disciples claim, the $130 to $200 per truck cost of conversion is soon repaid.

Many LP converts cite as the primary benefit, however, the safety factor and elimination of fumes. The fume angle is of particular importance in operations where noxious gases might be harmful to the products handled, and in limited space, low-ceiling indoor operations.

The LPG Authority says that LP fumes are less irritating because they throw off 14 times less carbon monoxide than gasoline. In addition, LP-Gas burns as a dry fuel, gasoline as a wet fuel.

A long standing prejudice against propane's and butane's notorious inflammability is discounted by

Profitable

LPG people, who claim that properly installed and rigged with fuel cut-offs, self-locking couplers, high-pressure equipment and other safety devices, LP-Gas is as safe to operate as any other type fuel.

Savings Breakdown

Butane sells for approximately 11¢ a gallon, without road tax. This compares to approximately 18¢ for gasoline. For an average 8-hour day, this represents a savings of approximately 35¢ a truck. No claim is made that LPG gives more miles per gallon than gasoline. The two fuels seem about equal in this respect.

The largest savings are reported in maintenance. Los Angeles' Western Carloading Co. reports one LP conversion running 7000 hours without oil change. Oil samples were lab tested every six months.

Western installed its first LP-operated fork truck late in 1949. This vehicle, a 2-ton Clark with a Continental 4-cyl, F-4121 engine is still running on its original five quarts of oil, 3270 hours later.

A regulator hasn't been removed for repairs since installation. The original spark plugs are still in use, and engines are given major overhauls every 8000 hours.

Los Angeles' Metropolitan Warehouse Co. runs its LP conversions 100,000 miles, figuring 35 miles to an

(*Please Turn to Page* 64)

Above: Quick couplers are self-sealing on both sides, valve on top of the tank is a safety turn-off

Above: Five-gallon tank also can be installed in a welded, strap-metal basket, is easily interchangeable

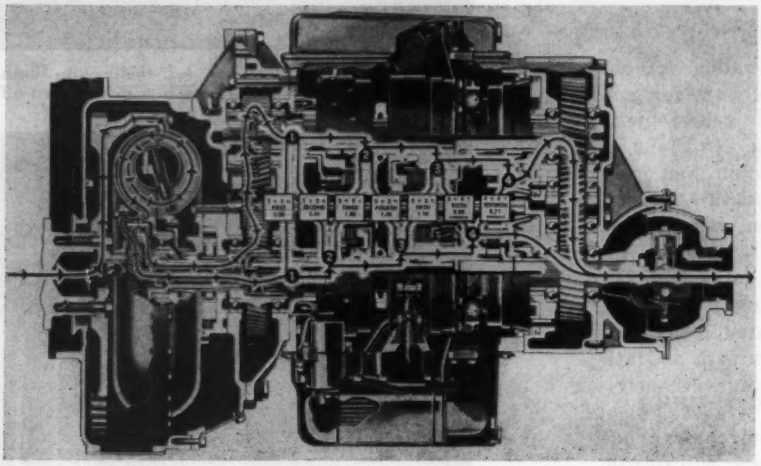
Fork truck engine equipped with LP-Gas components. Partially shown in this cut-away view are the regulator-heat-exchanger and solenoids

Test shows clean oil. Oil consumption and dilution is nil, maintenance negligible with LP-Gas power

DA New PRODUCTS

FOR FURTHER INFORMATION USE READERS' SERVICE

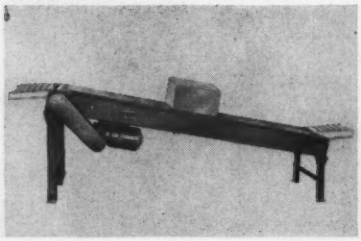
GMC Truck Twin Hydra-Matic Secret Revealed



Circle 50 on Card Facing Page 51

Inner workings of GMC's new Twin Hydra-Matic transmission for heavy duty trucks is revealed in the above cut-away diagram outlining the power flow. Secret of the new development is a planetary gear set, bolted to the driven member of the fluid coupling, which acts as a differential and operates both upper and lower Hydra-Matic units.

The two units are governed to shift independently and alternately with each other, giving seven speeds. Both units are geared together at the rear, driving a single output shaft which is connected by a short coupled universal joint to a 3-speed reduction unit controlled by a lever mounted on the cab floor. The Twin Hydra-Matic transmission not only will decrease driver fatigue, which is an important factor in highway safety, but will insure operating economies through proper gear selections and faster, automatic shifting, GMC states.



Self-Contained Unit

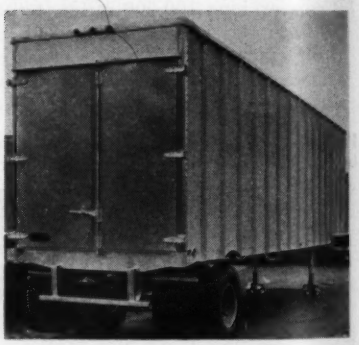
Completely self-contained, this Unit Booster can be incorporated into an engineered conveyor system or can be purchased and installed by any competent mechanic for special purpose jobs. For normal conveyor loads, it can be used for inclines up to 30 deg.

Unit Boosters, manufactured by Lamson Corp., are made of a 5-ft drive and a 5-ft take-up section, which may be joined together to make a 10-ft unit. Intermediate sections of 5 ft or 10 ft length may be added to extend the booster in multiple lengths of 5 ft up to 60 ft. They are available in two widths, 18 and 30 in., and can be equipped with any standard type of 3-ply belting.

Circle 51 on Card Facing Page 51

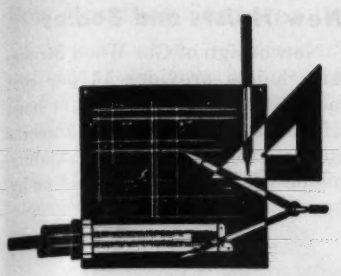
Plastic Body

The new Strick plastic trailer is impregnated with satin aluminum pigment to control the amount of light permitted to enter. The new material is corrosion resistant and nonelectrolytic. Hides, lye, storage batteries—either acid



or alkali cargo—can be transported in the plastic freighter with no special precautions, Strick claims. The reinforced fibre glass and polyester resin plastic is slightly lighter than aluminum, has approximately the same strength, and is impact resistant. The rear doors are aluminum and the body is built on either standard chassis or as drop frame model.

Circle 52 on Card Facing Page 51



CARD....PAGE 51

Bantamweight Tractor

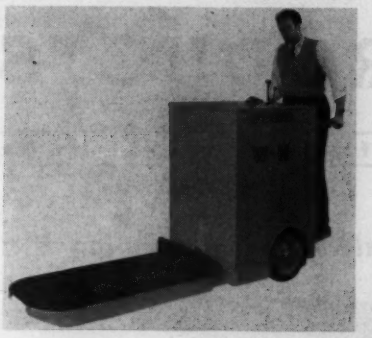
A new four-wheel "Banty" gasoline tractor, Model 460, for use in the trackless train system of material handling, has been developed by Mercury Manufacturing Co. Two models are available—the standard is rated at 2,300 lb maximum drawbar pull and the heavy duty at 3,000 lb. The new tractor

has an outside turning radius of 62 in. and is equipped with a centrally located inclined Ross cam and twin lever gear, fitted with an automotive steering wheel, for effortless steering. A selective synchro-mesh transmission offers three speeds forward and one reverse.

Circle 53 on Card Facing Page 51

Completely Redesigned

Wright-Hibbard Industrial Electric Truck Co. has added this completely new, redesigned low-lift platform truck of the stand-up rider type to its line. It is available in 2-, 3-, 4,000-lb capacities, and platform sizes for any skid handling and transportation requirement. A hydraulically operated platform, ball and socket steering, Timken bearings on all wheels, a magnetic controller with four running speeds in either direction, and a time delay switch

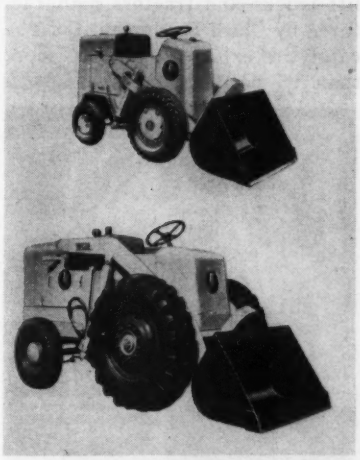


that prevents jerking the load when starting in high are several of its new features.

Circle 54 on Card Facing Page 51

Torque Converter Drive

New models of the HA and HAH front-end shovel-loaders, manufactured by Frank G. Hough Co., now are available with torque-converter drive as standard equipment. In addition, the HAH model is equipped with power steering. The HA has a payload capacity of 16 cu ft and a struck-load capacity



of 12 cu ft. The HAH has a payload capacity of 24 cu ft and a struck-load capacity of 18 cu ft, an increase over the former model.

The 4-speed, full-reversing transmission continues to be a feature of the new HAH model, providing four speed ranges from 0 to 23 mph. The new HA shovel-loader has a 2-speed, full reversing transmission providing speeds from 0 to 11 mph.

Circle 55 on Card Facing Page 51

Longer Clinching Blade

The P4-8P, a new Bostitch stapling plier with a longer pointed clinching blade than those of existing models is designed for more efficient sealing of corrugated containers. It is equipped with a

sharply pointed blade which, when inserted at the edge of a container, clinches the staple as the driving mechanism forces it through the top flap, leaving only a small slit when blade is withdrawn. Staples ½ in. in size as well as ¼ and ⅜ in. can be used.

Circle 56 on Card Facing Page 51

Power Turntable

A new Rapistan power turntable transfers cartons at 90 or 180 deg angles between two parallel or right-angle conveyor lines. The new unit, which takes up only 4 ft of floor space, has a rotating

carrier disc that floats packages around intersections where gravity or power conveyor curves cannot operate. It handles cartons as large as 22 x 18 in., 24 x 14 in., or 20 x 20 in., as well as packages too small to transfer successfully on some types of power curves.

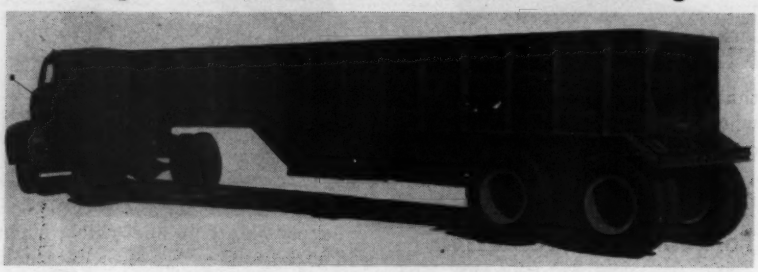
Circle 57 on Card Facing Page 51

(*Please Turn Page*)

DA New PRODUCTS

Continued from previous page

Single or Tandem Axle Unit for Hauling

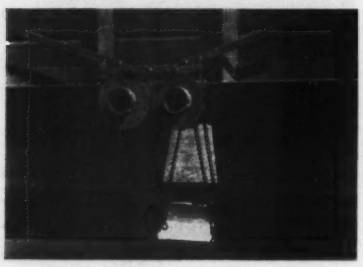


Circle 58 on Card Facing Page 51

Fruehauf Trailer Co. has designed a new trailer unit for hauling sand, gravel, crushed stone, cinders, coal, grain, soda ash, cement, etc. It is particularly suited for serving bins and overhead loading.

The new unit comes in both single and tandem axles with 10- and 14-yd capacity, respectively. Bodies are all high tensile steel and are ribbed and braced vertically by triangular pressed steel posts, and diagonally by struts and gussets. Reinforcement is provided by transverse steel channel cross members and stays.

The dump gates are of sand-tight construction and are flanged and reinforced with steel chan-



nels. Separate trip mechanism is provided on the gates of each hopper. Dumping is in windrows which can be readily leveled by scraper. These units also can be used for spot or bin unloading.

Catalytic Exhaust

The OCM catalytic exhaust, manufactured by Oxy-Catalyst, Inc., is now available for factory installation on gasoline-powered lift trucks and tractors manufactured by Clark Equipment Co. The catalytic exhaust oxidizes more than 95 per cent of the carbon

monoxide and hydrocarbons in the engine exhaust, converting them into harmless carbon dioxide and water vapor. More than 30 different catalytic exhausts for various types of fork trucks and for other gasoline power equipment are available.

Circle 59 on Card Facing Page 51

New Hoists and Bodies

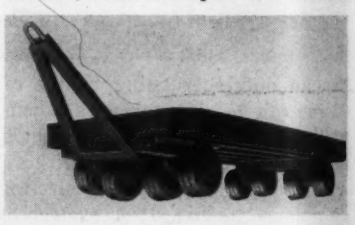
New design of Gar Wood Strong-Arm hoists provides 14 per cent more lifting capacity, longer hoist life because of better engineered construction, and easy maintenance without special tools or hy-

draulic specialists. A total of 12 standard bodies comprise the new GA series. They consist of general contractors bodies, coal and coke bodies, combination dump and platform bodies and scow-end garbage bodies.

Circle 60 on Card Facing Page 51

60-Ton Capacity

Designed for pulling either singly or in train by industrial tractor, this Phillips Mine & Mill



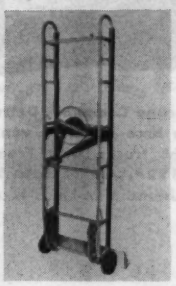
Supply Co. trailer is built in two styles: Model TFU-1200, with fifth wheel on the front axle only; and Model TDU-1200 with fifth wheel on both front and back axles for extra maneuverability. This heavy duty trailer has a smooth steel deck surface, with a body framework of "I" beams and channels.

To eliminate danger of the load tipping over, the design includes a wide wheel base, articulated axles, eight solid rubber-tired wheels and an exceptionally low center of gravity. Basic size is 7 ft 6 in.; however, the trailer can be built to specifications.

Circle 61 on Card Facing Page 51

New Handling Features

A new all steel "Stairmaster" appliance truck, manufactured by The Fairbanks Co., weighs only 35 lb and has five new features: (1) Belt tightener eliminates use of buckles and substitutes a simple automatic, positive lock. (2) Hand wheel is used to apply proper tension on belt and also keep the extra long belt neatly rolled out of the way. (3) Stair-climber walks appliances over the steps with no rubbing, rolling or sliding friction between the climber and the step. (4) Rubber rockers of stair-climber are also tangent with wheel, eliminating hump or bump as truck is moved over stair. Rockers also are of a neutral color that will not mar or mark steps. Offset of stair-climber allows operator to handle loads on stairs in a more upright position and at a better balance decreasing fatigue. (5) Tubular steel, rigidly braced frame is sheathed in non-marking rubber bumper stock and nose plate is felt-lined for added protection of appliances.



Circle 62 on Card Facing Page 51

Stencil Cutter

Diagraph-Bradley Industries, Inc. announces the D/B Quarter Cutter, a ¼-in. stencil cutting machine. It will cut 10 lines, 48 characters per ft, on any weight stencil board and soft metals. It has ball bearings, stationary dial, specially hardened letters, automatic feed for any length stencil and interchangeable, easily replaced letters.

Circle 63 on Card Facing Page 51

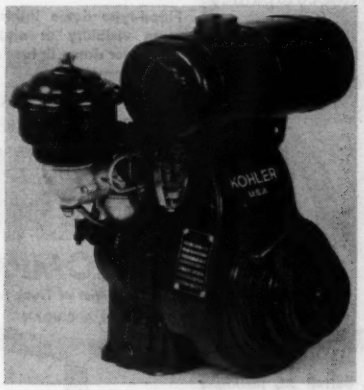
Long Reach

An electric fork truck which operates in a 7-ft aisle and picks up and deposits loads without straddling pallets or skids has been developed by The Yale & Towne Manufacturing Co. The new truck, called the Warehouser Extend-A-Load, has 2,000-lb capacity at 24-in. load center. Capable of short radius turns, it can reach out and pick up or deposit a load at any height from floor level to 126 in. With fork spread adjustable from 12 in. to 26½ in., the truck can handle pallets and skids of various sizes and types.

Circle 64 on Card Facing Page 51

Air-Cooled Engine

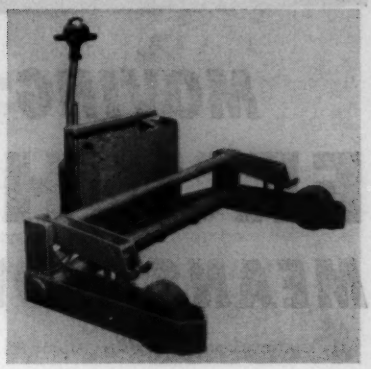
The Kohler K90T 3.6 hp air-cooled engine with retractable starter provides easy, quick-starting with the self-contained starting unit attached to the engine, eliminating the necessity for a rope. The K90T weighs 40 lb and is regularly furnished with a fly-ball type governor, oil bath air cleaner, silencer-type muffler and one-gallon fuel tank.



Circle 65 on Card Facing Page 51

Warp Beam Lifter

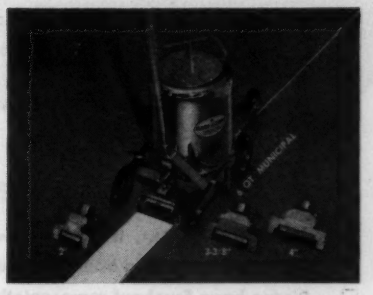
Lewis-Shepard Products, Inc. has developed a custom built Jacklift Electric truck for a textile manufacturer to handle 2,000 lb, 32 in. dia. by 64 in. long, warp beams. The operator runs the truck up to the warp beam until the truck's arms straddle the beam and the grooved lifting arms are under the shaft. Then, by pushing a button on the handle of the truck, the load is gently raised and ready to be transported to the desired location. A second button is pushed to lower the warp beam. Its compact design makes for easier operation in confined areas.



Circle 66 on Card Facing Page 51

Operates in Close Quarters

Mark-A-Zone, made by S. B. Beugler, operates where the larger, heavier, bulkier equipment stops. It gets in close to automobiles, stock piles and perishables, and there is no spray dust to cause injury. It will paint up to 1,500 ft of stripe per hour. Light in weight and simple to operate, Mark-A-Zone will start and stop instantly, is quick and easy to clean, and uses free-flowing, non-clogging gravity feed.



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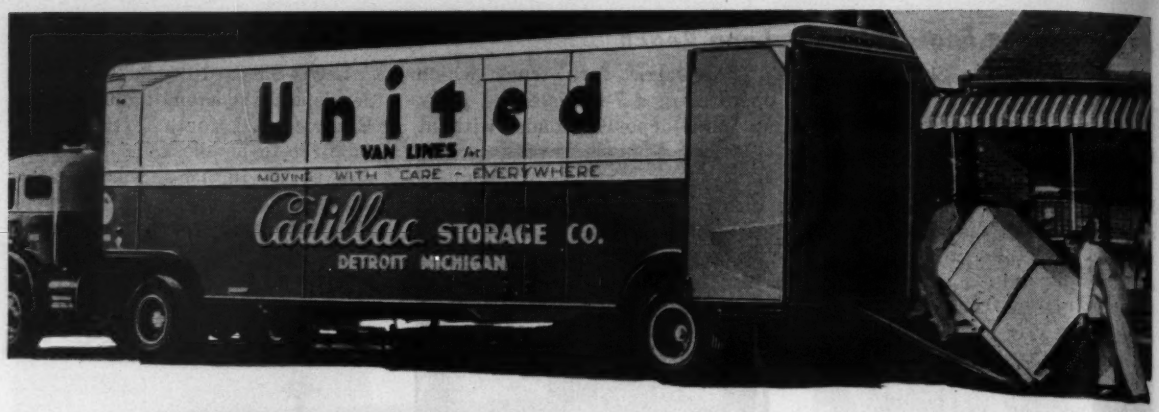


MOVING WITH FRUEHAUFS MEANS MOVING WITH CONFIDENCE!

Cadillac Storage Company, Detroit, operates a fleet of eight de luxe furniture vans, all Fruehauts, and two straight trucks with Fruehauf truck bodies. Founded in 1923, Cadillac is a Michigan, coast-to-coast agent for United Van Lines in all interstate traffic.

YOU can be confident that the design of your Fruehauf equipment will be the very best that experienced Trailer engineers can produce—with all the options you may require.

You can be confident that its construction, too, will be the best that the world's most experienced Trailer manufacturer can turn out.

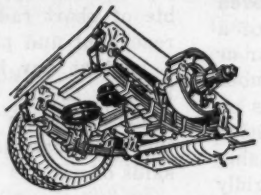
You can be confident that the equipment will be long-lasting and easy and economical to operate and maintain.

You can be confident that service, should it be needed, will be close at hand wherever the equipment may be.

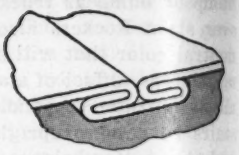
That's why experienced furniture moving companies like Cadillac Storage Company, Detroit, have standardized on Fruehauf equipment.

"We have complete confidence in Fruehauf engineering and manufacturing," says William P. Bradley, Jr., President and General Manager of the company.

"Fruehauf Furniture Vans are economical to operate and maintain. And the company's nation-wide service has proved *most* helpful."

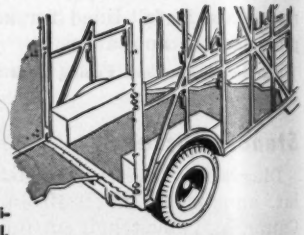


Multi-Rate suspension. Exclusive, smooth riding, prevents cargo damage. Standard.



Coin-pressed interlocking roof seams seal out dust, water, make roof repairs easy. Standard.

Flood-type dome lights—for maximum visibility at night, optional. Center dome lights, standard.



Full-length galvanized steel subfloor, standard; large tail-gate, level with floor, optional.

"ENGINEERED TRANSPORTATION"

FRUEHAUF
TRAILER COMPANY
World's Largest Builder of Truck-Trailers
DETROIT 32, MICHIGAN

MEMBER OF ATA FOUNDATION, INC.

Don't wait. Send today for the free folder that tells the full story of Fruehauf Furniture Van features.

FRUEHAUF TRAILER COMPANY, 10950 Harper Avenue, Detroit 32, Michigan

☐ Send free, illustrated booklet, "Leader In Its Field."

☐ Please have Fruehauf representative call.

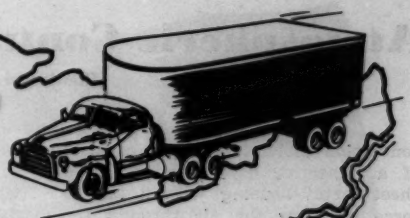
Firm_____ By_____

Address_____

Telephone_____

Circle No. 116 on Card, facing Page 51, for more information

FULCO FURNITURE PADS STOCKED NEAR YOU!



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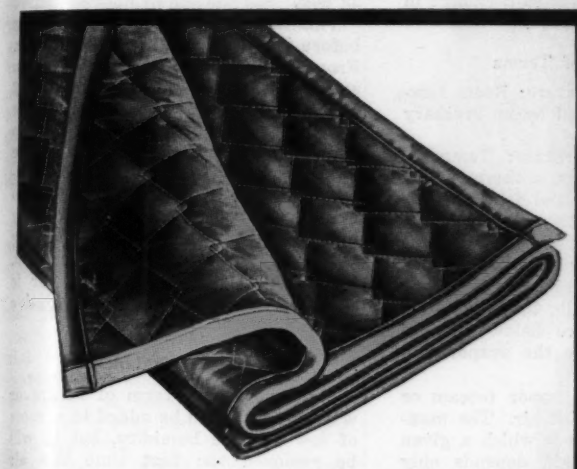

DIAMOND STITCH

Fulton's three famous "Gilt-Edge" Furniture Pads —**DIAMOND STITCH**—**ZIG-ZAG STITCH**—**CHANNEL STITCH**—are always in stock at EIGHT strategic locations. Fulco two-tone Furniture Pads take up less space, are the longest wearing and most satisfactory Pads money can buy. Ordering Fulco Pads from your nearest Fulton Branch means you will save on freight and get fast delivery service. Write, wire or TWX your order to the Fulton Branch nearest you.

ONE-INCH ZIG-ZAG STITCH

CHANNEL STITCH

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Circle No. 119 on Card, facing Page 51, for more information

Atmospheric Control . . .

(Continued from Page 41)

convection cooler. This type consists of a finned or bare pipe coil in a sheet metal housing with a fan to force or draw the air through the coil and distribute it around the room.

Some units are suspended from the ceiling and other larger ones are built to stand on the floor. These units are manufactured in various sizes. Single units or multiples of units can be installed to provide proper refrigerating capacity.

Temperature Control

Control of temperature in the room or rooms can be accomplished in a number of ways. If the installation is a single room, with its own compressor and evaporator, the most simple and economical method of control is to use a thermostat to start and stop the compressor, as the temperature of the room demands.

The important thing about the use of a thermostat is to have one of the proper range and proper temperature difference between the on and off control, and to locate it so that the temperature which controls it represents the true temperature of the room.

If, as in most cold storages, there are many rooms that are all refrigerated from the same system, a different form of control is required. There are many systems that can be used. Most types were described in an article entitled, "Atmospheric Influence On Storage Space," beginning on Page 20 in the December, 1953, issue of DISTRIBUTION AGE.

In systems where straight pipe coils or similar types of evaporators are employed, the quantity of refrigerant supplied to the coil can be regulated by manual control, or by some form of automatic device, such as a thermal expansion valve. If several rooms are supplied from a common bunker system with the above mentioned type evaporator, the quantity of air supplied to each room can be regulated as required.

With unit coolers or similar evaporators, the above mentioned refrigerant controls can be used. In addition, if these evaporators are of the flooded and refrigerant liquid level controlled type, their evaporating temperature can be regulated by means of a back pressure valve.

Another method is to have the fan on the unit cooler stopped or started by means of a thermostat to control the temperature of the room.

Humidity Control

We have found that the proper low temperature will keep fresh fruits and vegetables from spoiling by stopping or slowing down ripening and decay. If the conditions in the room were too dry, the water or fluid will evaporate from the product, and it will shrink, lose its firm texture and flavor, thus becoming unsaleable.

In like manner, products such as dried fruits, nuts, or candies could be spoiled if the moisture in the air was too great.

Goods stored in low temperature freezer rooms also can be materially affected by very dry conditions in such rooms. The product will lose considerable weight which represents a loss of value, and will be substantially reduced in quality due to a change in flavor, color and texture.

Glossary of Terms

Dry Bulb temperature: Room temperature as measured by an ordinary thermometer.

Wet Bulb temperature: Temperature as measured by a thermometer similar to the one used for dry bulb measurements, but on which has been placed a small gauze covering over the bulb end. The gauze is kept wet with pure water while air is moved rapidly over the bulb, thereby lowering the temperature below that of the dry bulb due to the evaporation of the water.

Humidity: Water vapor (steam or moisture) mixed with air. The maximum weight of vapor which a given enclosure will contain depends only on the temperature, regardless of the presence or absence of any other vapor or gas.

Saturated Air: Air is saturated when it has mixed with it the maximum possible amount of vapor, which amount varies with temperature.

Relative Humidity: Degree of humidity. Actual amount of moisture contained in 1 cu ft of the mixture divided by the amount which 1 cu ft of the mixture would hold at the same temperature if saturated. This condition is stated as a per cent relative humidity.

Dew-point Temperature: Temperature corresponding to saturation (100 per cent relative humidity) for a given weight of vapor. Air with any amount of vapor or relative humidity has a dew-point, as temperature may be lowered to a point where condensation begins.

Temperature Effect

The lowest temperature to which the air is cooled is the factor which controls the total amount of moisture in a cubic foot of air. If this cubic foot of air is allowed to rise in temperature, it will be able to hold more moisture, and at this new condition its relative humidity will be the amount of moisture that is held at the low temperature (saturated condition) divided by the maximum amount of moisture it could hold at the higher temperature.

From this we see that the basic regulation of relative humidity in any refrigerated space is by the control of the lowest temperature to which the air is subjected, and the amount it is allowed to rise in temperature before it is again cooled.

As an example, in an apple storage room we would hold the temperature at 31 to 32 deg F, and a relative humidity of 85 per cent. If the evaporator was a unit cooler of insufficient size we would have to cool the air to a low temperature of approximately 23 deg. This would mean that the air off the cooler entering the room would have a dew-point of about 22 deg.

This air will rise to 31 or 32 deg before it again returns to the cooler. From the psychrometric chart we can see that this air will now be at 62 per cent relative humidity, which is lower than specified. The best way to correct this condition of low relative humidity would be to add more evaporators, thus permitting more air to be circulated and raise the evaporator temperature so that the air entering the room under the new condition, would be 28 deg. When this air is raised to 31 or 32 deg its relative humidity would be 85 per cent.

Moisture Balance

Moisture in the form of steam or water vapor could be added to a room of low relative humidity, but it will be removed the first time the air passes over the evaporator, thus requiring more moisture to be added. This could go on and on, the relative humidity would be higher, but considerable refrigeration load would be added to the unit, as well as additional frost to the coils in the evaporator.

In the case of a candy or dried fruit room, where low relative humidity is required, the reverse procedure is used. Thus, smaller evaporators are needed with lower temperature of air off the unit.

Freezer rooms require the same basic procedure as the apple rooms, to keep a high relative humidity. But, the important factor with freezer rooms is that at very low temperatures such as —20 deg or lower the total moisture content of the air is extremely small.

The amount of moisture that will be removed from the product, even if the relative humidity is less than 50 per cent is very small, because so little moisture is required to increase the relative humidity from 50 to 100 per cent as is observed from the psychrometric table.

The above factor is the reason more and more cold storage warehouses are changing to the very low temperature freezer rooms for long hold requirements. •

(Resume Reading on Page 42)

Survey Shows . . .

(Continued from Page 29)

Because this study deals with per cent averages, instead of exact percentages, there are bound to be slight discrepancies in the median percentages obtained. This is a weakness of statistical compilation, rather than mathematical accuracy.

For example, the Chemical group of industries report no cars rejected by the shippers. This would imply that they clean and use all cars received. Yet the table shows that only all gondolas and flat cars are cleaned and used, while but 98 per cent of the other types of cars are cleaned.

This can lead to but one conclusion: The balance of 2 per cent are used in whatever condition they are received. This conclusion has substance in comments such as these: "A car has to be awfully dirty before we bother to clean or reject it"; or "We just shovel out dunnage and debris, we don't bother to sweep them clean."

Not only did this survey aim to determine the dirty car situation as it exists today, but to ascertain if conditions are better or worse than a year ago. The consensus seems to be that there is an improvement.

A majority of 46 per cent of industrial traffic managers report slight improvement, and 24 per cent believe that there is considerable improvement over a year ago. This is a total of 70 per cent.

Only 30 per cent believe there has been no improvement. However, while a minority, this still indicates that there is much to be done before the situation can be considered satisfactory. When one of every three or four shippers has cause to complain about dirty cars, the situation is far from being good—except for other forms of transportation.

Punitive Measures Not Needed

The only other pertinent data compiled in this survey, but not mentioned in this or the previous commentary, relates to the need for punitive laws, aimed at either shipper or carrier, to vorrect the dirty car situation. To this question, the majority of industrial traffic managers replied "No."

The actual breakdown was 40 per cent for such legislation, and 60 per cent against it.

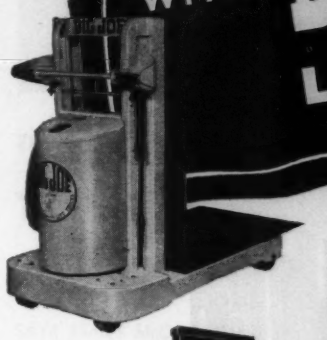
In Part I of this analysis, 2.5 per cent of the respondents recommended legislative action under the question asking for suggestions for improvement of the dirty car problem. This pro-legislation group includes the same respondents. They have emphasized this point by replying "Yes" to this question and also included it in the suggestion column. •

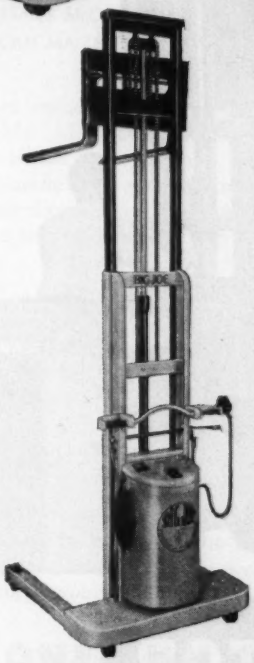
(Resume Reading on Page 30)

IBH* IS LIKE A BLUEPRINT

*In-Between Handling—Short distance manipulation of materials too heavy for manual handling yet not requiring high priced power-driven equipment.

CUSTOM-BUILD WITH BIG JOE® LIFT TRUCKS





• When a company builds a plant—lays out its production—manufactures a product—it follows a blueprint. Nothing is left to chance. "Custom-building" each element for maximum efficiency, eliminating unnecessary capital, operational and maintenance expenses are drafting board functions.

The same type of planning should be applied to materials handling through the application of modern IBH* principles. You can now install an *exact capacity* lift truck to meet the specific requirements of *each individual department.* From more than 40 "BIG JOE" hydraulic lift trucks, you can fit your equipment to the job—avoid excessive investment in high priced equipment—drastically cut operating expenses—reduce maintenance costs to the bone.

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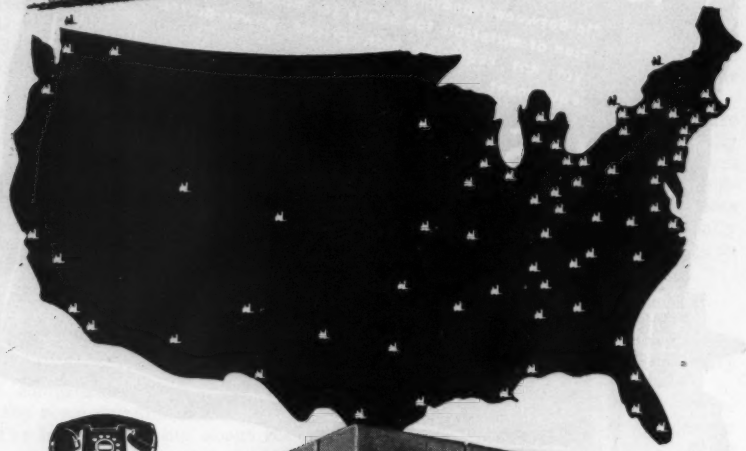

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An important part of TOWMOTOR policy is to spot service facilities *near* each TOWMOTOR user. Your nearby Towmotor Representative is your service station. Whether it is a routine Preventive Maintenance check-up or an emergency call, his factory-trained and factory-equipped mechanics are at your service. To assure original performance and economy, your TOWMOTOR Representative also maintains a full and complete stock of TOWMOTOR Replacement Parts. Ask for a copy of the "Towmotor Portfolio on Preventive Maintenance." TOWMOTOR CORPORATION, Div. 1906, 1226 East 152nd St., Cleveland 10, Ohio.

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FORK LIFT TRUCKS and TRACTORS
SINCE 1919

TOWMOTOR ENGINEERED FOR QUALITY PERFORMANCE

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. . . Bottlenecks

(Continued from Page 27)

system of limit switches, prevent pressure buildup along the backlogged line. Thus, risks of crushed cartons, falling and breaking bottles, is kept to a minimum.

Railway Signal System

A signal system, similar to that of a railway block system with red, green and white signals, inform the operators feeding the empty cartons as to the load conditions on the incoming lines to the soakers. Load conditions in four sections or blocks ahead are reported to the empty feeders by the lights.

Green advises that the line is filled up, but still moving. White warns that the section is completely filled up. Red announces that the line is full and has automatically shut off and therefore loading of the continuous belt conveyors leading to the roller carriers must be temporarily halted.

Carton "Policemen"

Carton "policemen" at junction points automatically give a "right-of-way" where conveyor lines merge. When a gate on one merging line is opened, a locking cam holds the gate on the other closed. Interruptions in the flow of cartons on the one line, plus the pressure on the gate from cartons stopped on the other line releases the cam. This opens the gate for the line with the full supply, while closing the gate to the traffic on the opposing line.

Three automatic truck docks, specially designed for loading and unloading palletized stock, are push-button controlled. Each vehicle is either raised or lowered while being loaded or unloaded, thus enabling the fork life trucks to operate into the vehicle without difficulty.

The warehousing-receiving-shipping area, in addition to the nine truck docks, is served by two indoor rail spurs as well as by the railway line which passes through the building. Eight freight cars can be accommodated at one time. In one day, 15 can be loaded, 10 unloaded, representing a handling capacity of 19 million bottles of beer a month.

Actually all loading operations of trucks and railway cars are handled indoors. Sixty trucks and trailers can be accommodated in an eight hour day. Approximately 1,750,000 bottles are handled daily. A trailer can unload its empties and reload with filled palletized cartons in one hour, a saving of 40 minutes over the old manual method.

Radiant heating of the loading dock floors in all receiving and loading

docks enable the company to keep the area free of dangerous slippery ice and snow during the severe Canadian winters. It also facilitates the removal of snow from the company's premises. It is simply plowed right onto the dock where the heated floor disposes of it down the sewer system, eliminating all the usual hauling to a snow dump.

Fleet of Fork-Lift Trucks

A fleet of six gasoline fork-lift trucks and two electric hand trucks supplement the conveyor systems. The fork trucks are chiefly used for warehouse stacking and loading of palletized stocks. With the exception of the incoming cases of empties, all incoming supplies for this plant are received on pallets at one station, and then dispensed on pallets to point-of-use storage areas located adjacent to the appropriate working stations.

Used Cartons Baled

After the removal of empty bottles, the used cartons are tossed onto a conveyor line which feeds them into a giant hopper of two electrically operated balers located in another section of the building. These waste paper balers can bale 46-1,000 lb bales in an eight hour shift. After being compressed, bales are removed by power hoists and then transferred to the rail shipping area by fork truck.

Filled Cartons

Filled cartons are carried by conveyor from the packing machines directly to the carton sealing room, where they are closed and sealed automatically. The conveyor lines from the carton sealing area offer the flexibility of directing the flow of filled cartons either to railway, trucks or to palletizing station.

Electric Counter

Every carton which leaves the shipping dock is electrically counted. This keeps a continuous record of the exact number of cartons arriving from the production lines to pass out into railway cars, trucks or trailers.

Glass Crushing Machine

New safety and conveniences for employes result from a glass crushing machine which grinds the rejected cracked or broken bottles rejected from the bottle inspection lines. This machine crushes into small pieces the broken glass and directs it into a hopper holding 20 tons and located over a truck stall, which periodically hauls the crushed glass away for shipment to glass manufacturers. With an inlet on each floor of the building, the crushing chutes drop onto a closed conveyor, which takes the broken glass to the glass crusher located on the ground floor. •

(Resume Reading on Page 28)

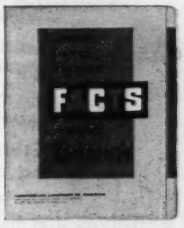
"AFTER TESTING ALL TYPES...we standardized on Magcoa Dockboards"

SAYS JAMES McCABE, CHIEF INDUSTRIAL ENGINEER, AMERICAN MAIZE-PRODUCTS CO., ROBY, INDIANA

James McCabe, Chief Industrial Engineer, American Maize-Products Co., a cost-reduction, warehousing and palletizing expert; a frequent speaker and author of many articles on materials handling.

"Before standardizing on Magcoa Dockboards," says Mr. McCabe, "we tried all types—both heavy-metal and another type of light-metal, 'home-made' and specially made. Then we chose Magcoa Dockboards because they're light and easy to use, and yet hold up under constant hard wear.

"Cost records for our 31 Magcoa Dockboards, used on both truck docks and rail docks," continues Mr. McCabe, "show a measurable savings of more than $2500 a year in labor, truck and tire maintenance—plus an immeasurable employee relations benefit because our Magcoa Dockboards are safe and save strain. They actually paid for themselves in their first three years of service."



A suggestion: Ask for a copy of our new Facts File that shows how Magcoa Light-Weight Heavy-Duty Magnesium Dockboards can save money and speed handling for *your* company. Use the handy coupon.

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with HYDRA-LIZER*

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3,000 lbs. at 24"

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Fluid coupling, oil-immersed clutch, constant mesh transmission — a combination that transmits power smoothly and efficiently with minimum wear and service. There is NO CLUTCH PEDAL — just ONE push-pull forward and reverse lever!

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Another Mobilift exclusive . . . equalizers mounted on each rear wheel and connected hydraulically to cross compensate the truck when the *front* or *rear* wheels pass over bumps or depressions.

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Ceramic . . .

(Continued from Page 37)

suitable clean-up stations where flash and other casting defects are manually removed or repaired. The unfired products are respectively mounted on freely-rotating turntables at each clean-up station, so they can be handled without damage.

Overhead Conveyors

Both roller and overhead conveyors are used to move parts from clean-up stations through a pair of dehydration ovens to the plant's tunnel kilns. Dehydration ovens are low-temperature units, designed to prevent defects by removing minute quantities of moisture from the casts before they are fired.

Mechanized pallets are used to convey casts through the tunnel kilns, and between trips through the kilns the casts are glaze-finished with pneumatic spray equipment.

Extremely small and simple spray booths are used in glazing products. Glazes are pigmented for color effects before and after firing to avoid confusion among workers in loading parts on mechanized pallets for the tunnel kilns.

Except for five men from the company's Chicago plant, all Crane-Pacific workers have been hired in Colton since the early part of 1951. A majority of these employes had to be trained before they could handle their present jobs. This would have been a hopeless task if it had been necessary to qualify each new man as a ceramist.

By using a straight-line production setup with more than 6,800 ft of overhead and roller conveyors, the firm has been able to simplify job requirements so that quickly-trained shop personnel can maintain all operations essential to production with more efficiency. •

(Resume Reading on Page 38)

Two-Way Payload Service

Hauls Livestock or Dry Freight: This western train, operated by Madras Freight Lines, hauls livestock from Madras to Portland, Ore., stockyards. Payload on return trip is dry freight. The 60-ft train is a cab-over-engine International RDFC-405 truck and full trailer with a 200-hp diesel engine, 10-speed transmission, and 37,000-lb capacity tandem rear axle

Rouen Wine . . .

(Continued from Page 43)

controller who is housed in a central control booth.

Every possible combination of inter-tank connection can be made. Luminous dials indicate through which of the pipes wine is flowing at any given time. This avoids any mistake which might result in the mixing of wines of different quality or type, or belonging to different importers.

All the tanks are of reinforced concrete with a rough water-tight lining. To avoid any contact between the wine and the concrete, the tanks are lined with special glass panes. The tank chambers are almost rectangular in shape, but have slightly sloping beds to facilitate drainage.

Special attention had to be given to the heat insulating properties of the building. Part of the roof is saw-toothed with windows facing north. The remainder of the roof is flat and is insulated with layers of concrete and then a top layer incorporating aluminum for maximum reflection. Outside cavity walls are filled with insulating material and faced with brick.

Eight Tanker Berths

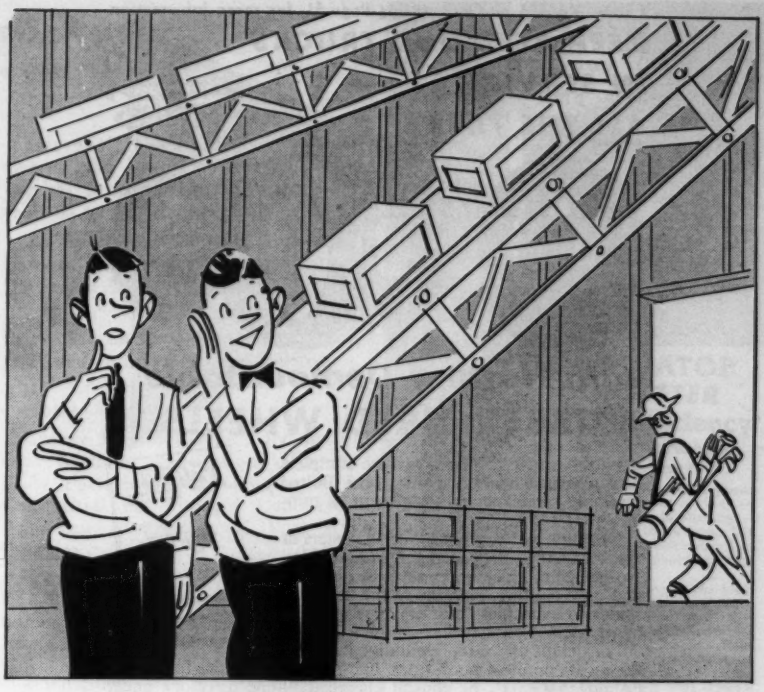
There are eight berthing positions for tankers at the quay, each position having two manholes connected by two pipelines of 80 mm diameter to the storage depot. The "Bacchus," one of the newer wine ships, has 40 storage tanks, specially treated to prevent corrosion and to guard against deterioration of the wine. The smooth walls facilitate cleansing by automatic spraying equipment. The entire system of pipelines is of copper and is housed in a tunnel running under the whole length of the tanks. The valves are operated from a central point on deck by means of a system of light signals.

Four pipelines of 120 mm dia. lead from the storage in underground tunnels to four small discharge jetties in the interior basin, location of berths for the tanker-barges which take the wine up-river.

Tanker-trucks

In addition to the main pipelines discharging from the storage to the tanker-barges and the other depots, secondary pipes lead to an extension of the ground floor where eight tanker-trucks can be filled simultaneously, each at the rate of 350 hl per hour. This, plus the simultaneous loading of four barges, each at 800 hl per hour gives a total theoretical minimum delivery capacity of 6,000 hl per hour, without taking account of delivery by cask or railway tanker-car.

(Resume Reading on Page 44)



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Gentlemen:
Please send me my free copy of "Owners Report."

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Circle No. 125 on Card, facing Page 51, for more information

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You don't have to buy expensive complete new wheels when tires are worn! Bolted assembly permits tire replacement in minutes—No special tools!

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For details and a representative listing of the most complete floor truck line in America write for Junior Catalog 54G . . . or consult classified phone directory under "Trucks" or "Casters" for nearest Nutting representative.

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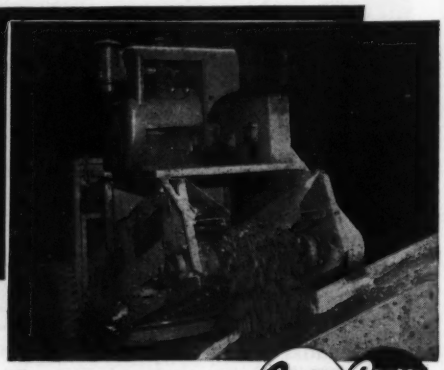
WISCONSIN-POWERED HAISS CAR UNLOADER



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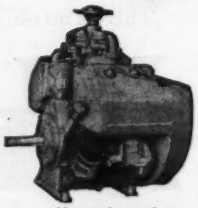
This Haiss Model 501 combination chain- and belt-type Car Unloader, made by the George Haiss Mfg. Co. division of Pettibone Mulliken Corp., provides another typical example of a time- and cost-cutting Wisconsin Engine power application.

Wisconsin Heavy-Duty Air-Cooled Engines have the "engineered-in" Lugging Power that stays with the job. When sudden shock loads slow down the engine speed and the torque builds up, your Wisconsin Engine *hangs on* and pulls through without stalling. Heavy-duty engineered design and construction, plus trouble-free AIR-COOLING, are factors that keep the work moving on schedule at all seasons, in all climates.

You can't do better than to specify "Wisconsin Power" for your equipment. Available in 4-cycle single cylinder, 2- and 4-cylinder models, in a complete power range from 3 to 36 hp.

Power TO FIT THE JOB Power TO FIT THE MACHINE



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Industry Items

Army Unveils Superduck

New GMC 2½-Ton Model With Hydra-Matic Drive Carries 4½-Ton Payload: Speeds in excess of 50 mph can be attained in cross-country travel. When afloat the vehicle is capable of traveling at 7 mph. Features are plastic cab construction, desert tires, an automatic centrally-controlled tire inflation system that maintains an even tire pressure under all conditions

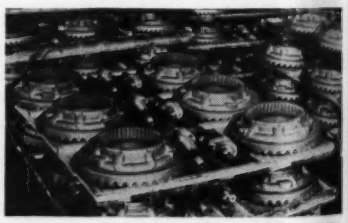
The first of 25 Douglas DC-7 airliners have been accepted by **United Air Lines** from the **Douglas Aircraft Co.** The new aircraft have a cargo capacity of 9,000 lb over and above a crew of five, 58 passengers and baggage.

E. I. du Pont de Nemours & Co., Inc., has a new $5 million textile laboratory nearing completion in Wilmington, Del. A $3 million polychemicals laboratory will be built later on the same tract of land.

An expansion and improvement program at the Indianapolis motor truck engine plant of the **International Harvester Co.,** will be carried out over the next two years.

The Robert H. Braun Co., Los Angeles, Cal., appointed distributors for Southern California and Arizona, **Coles Cranes, Inc.** The company, dealer for Clark-Ross materials handling equipment for Southern California and Ariz., opened new branches at both San Diego and Phoenix.

Special Pallet for Gears



Specially Designed Pallets, Measuring 40 x 40 in., Hold Six Sets, Capacity 600 Lb: To protect matching pinions and gears, the Axle Div., Eaton Manufacturing Co., Cleveland, Ohio, has designed pallet with slots so arranged that matching units line up next to each other, providing protection

Men in the News

(Continued from Page 17)

Norman F. Greenway and **Raymond F. DeVoe**, vice presidents of Robert Gair Co., Inc.—elected senior vice presidents.

Traffic

Leon W. Morse—appointed chief and supervisory freight traffic officer, Transportation Corps Movement Control Office, Philadelphia, Pa.; **C. L. Leeson**—assistant.

R. J. Stauffer—promoted to district sales manager, Yellow Transit Freight Lines. **Don MacCoy**—assistant terminal manager, Wichita, Kansas.

Elbert J. Brown, assistant traffic manager, Grace Line—received Forty Year Service Medal.

Transportation—Air

Clarence Francis—elected to the board of directors of Bendix Aviation Corp.

Dean I. Grauer—appointed cargo sales representative for K.L.M. Royal Dutch Airlines in the Cleveland, Ohio, area.

Wallace C. Palmer and **Randall T. Holden**—named commercial sales managers in San Francisco and New York, respectively, by Japan Air Lines.

John J. Carter—appointed comptroller, motor truck division, International Harvester Co. **Donald O'Brien**—new terminal manager, Elmira, N. Y., Interstate Motor Freight System; **Lewis Newhard**—terminal manager, Boston, Mass.; **C. E. Peasley**—terminal manager, Erie, Pa.; **Len Butler**—general agent, Philadelphia, Pa.

—Highway

Charles A. Hunter—appointed manager, Campbell Sixty-Six Express, New Orleans, La.

C. A. Johnson, president, Central-Illinois Securities Corp.; **Harold L. Fierman**, member of the law firm, Kay, Scholer, Fierman & Hays; **Stuart Hedden**, chairman, finance committee, board of trustees, Wesleyan University—elected to the board, Mack Trucks, Inc.

—Rail

J. W. Plant—appointed superintendent transportation, Northern Div., Atlantic Coast Lines.

Harvey C. Marmaduke, representative of the Executive Dept., Illinois Central Railroad—retired after more than 50 years in railroading.

J. Stanley Lowe—appointed assistant to freight traffic manager, Baltimore & Ohio Railroad.

James C. Naughten—succeeds **William H. Luckett**, general auditor, Southern Railway System, retired.

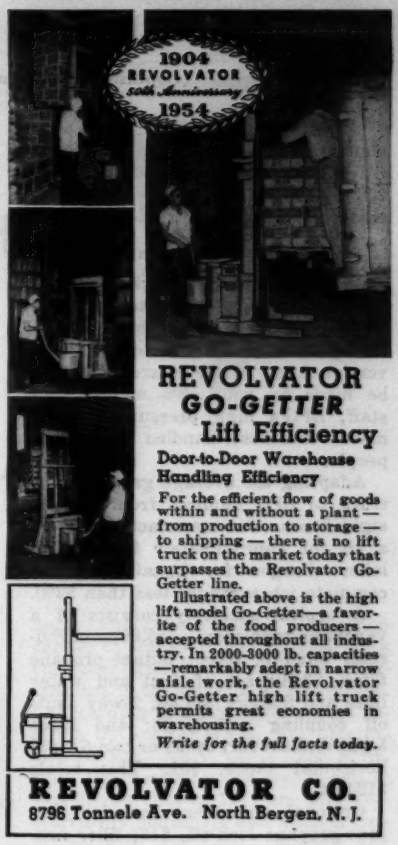
—Water

George E. Miller, chief, division of new business solicitation, Virginia State Ports Authority—appointed to Committee on Foreign Commerce, American Association of Port Authorities.

Vice Admiral Noward F. Kingman, U. S. Navy, retired—appointed a member of the Los Angeles Board of Harbor Commissioners.

Douglas W. Binns—new assistant traffic manager, Port Development Dept., N. Y. Port Authority.

Circle 127 on Readers' Service Card



REVOLVATOR GO-GETTER Lift Efficiency

Door-to-Door Warehouse Handling Efficiency

For the efficient flow of goods within and without a plant — from production to storage — to shipping — there is no lift truck on the market today that surpasses the Revolvator Go-Getter line.

Illustrated above is the high lift model Go-Getter—a favorite of the food producers — accepted throughout all industry. In 2000-3000 lb. capacities —remarkably adept in narrow aisle work, the Revolvator Go-Getter high lift truck permits great economies in warehousing.

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155 SIXTH AVENUE NEW YORK 13, N. Y.
Central Stations in All Principal Cities

A·D·T

Circle No. 128 on Card, facing Page 51, for more information

Switch to LP-Gas . . .

(Continued from Page 47)

hour's operation, between overhauls. Oil is changed every 10,000 miles, or 200 to 350 hours by the motor-hour chart.

The Conversion

A number of fork truck manufacturers now offer engines factory modified for LPG. Also, a number of butane-propane manufacturers sell conversion kits. While conversions can be made by your own maintenance staff, LPG's high pressure requirements are best handled by skilled people.

Adapting the average gasoline fork truck to LPG requires from four to eight hours. One manufacturer offers a kit for approximately $125. With labor charges for installation, the complete job averages less than $200.

A typical assembly consists of a vaporizer-regulator, $53.50; carburetor spud-in, $1.50; butane-propane filter, $3.90; set of fuel and water lines and fittings, $11.44; 2-way shut-off coupling socket, $3; and three 5-gal vertical fuel tanks or two 6.6-gal horizontal tanks, $51. This totals $124.34.

Optional equipment includes: butane-propane lock-off, $16; filler nozzle for vertical tanks, $3; coupling socket for quick-filler valve, $3; additional vertical tank, $17, or horizontal tank, $25.50; carburetor adapter in place of spud-in, $10; installation labor charges, $25.

The Installation

Usually the gasoline tank is left as is. Installed either behind the driver or to the right of his seat, is a vertical or horizontal butane tank. The horizontal tank is most often installed behind the driver, the vertical up front.

One simple method for fixing the tank so that it can be quickly changed, is to seat it on a welded, steel platform. Two or three heavy spring-actuated clamps hold it in place. A steel-framing, welded from strap metal, forming a kind of "bucket" in which the tank sits is another method.

In either case, the installation consists of a flexible, high pressure hose (250 psi) running from tank to butane filter unit. The hose is coupled with quick-change, self-shut-off fixtures. When the connection is pulled apart, both uncoupled ends—the one to the filter, the other to the tank—seal by spring action. A valve on the tank further assures complete shut-off.

The liquid LPG flows through the filter, into a heat-exchanger-regulator where it's converted to gas. Dry gas then goes to the engine's carburetor. Usually the regulator-to-carburetor hose is connected to a spud-in either in the gasoline carburetor or via a special carburetor.

Between filter unit and regulator there's an optional electrically-actuated lock-off valve. This hooks to an LPG on-off switch near the lift operator's usual engine controls. Off—and the lift can run on gasoline, with butane locked-off via the solenoid-valve. On and the butane valve opens while the gasoline supply is valved off—either electrically or manually.

Post-installation adjustments involve adjustments of idle and power set screws on the regulator.

Some conversions by-pass the heat-exchanger, take gaseous LPG off the top of the fuel tank. This seldom proves satisfactory because not enough LPG gas is self-produced in the tank to meet the engine's fuel needs. Especially since the tank is so small.

Empty tanks are collected and filled by a local butane supplier once or twice a week. Or, as in the case of some heavy users, a 5000-10,000-gal butane storage tank may be installed out-of-doors. Such a tank is costly—and usually not worth the expense in the average fork truck operation. •

(Resume Reading on Page 48)

The "new look" endures in a Gersco-bilt Van

The "new look" in national defense has its champions and critics. The new look in a Gerstenslager Custom-built Van speaks for itself. The fine appearance of our vans is nationally recognized. Their reputation for looking new and attractive long after they might be expected to show their age is a natural result of the way we build them. Write for our illustrated catalog.

The GERSTENSLAGER CO.

DEPT. D., WOOSTER, OHIO

Phone, Wooster 120; cable address, GERSTCO

Established 1860

Circle No. 129 on Card, facing Page 51, for more information

THE FASTEST, EASIEST WAY TO ADDRESS YOUR CONTAINERS

Pictured here is the WEBER DIRECT-TO-CONTAINER SYSTEM. The cartons have been pre-printed with a label frame. Consignee's address is printed inside the frames with a WEBER RJ-1 hand printer at the rate of 40 to 50 cartons per minute. Eliminates labels. Faster, neater than brush stenciling. The RJ-1 prints from stencil easily prepared on typewriter. Reservoir holds enough ink for 7,500 to 10,000 prints. Can be supplied with one or two counters for quantity check.

MODEL RJ-1 $14.50 WITH SUPPLIES.

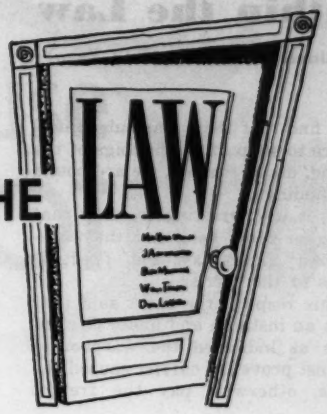
SEND FOR FOLDER ON THE RJ-1 HAND PRINTER AND DIRECT-TO-CONTAINER SYSTEM

Weber Label and Marking Systems,
Div.—Weber Addressing Machine Co., Dept. DA-4, Mt. Prospect, Ill.

another **Weber** *system*

Circle No. 130 on Card, facing Page 51, for more information

WITHIN THE LAW



By Leo T. Parker

Legal Consultant, Distribution Age

Last January the writer made a trip through several Southern states and talked personally with many warehousemen several of whom asked interesting legal questions. I shall now answer the questions for which I have located late and leading higher court decisions to verify explanations of the law.

What is the destiny of stored perishable goods pending the outcome of legal action?

A few days ago I received a letter from a Florida warehouseman with whom I talked on this trip. He wrote, as follows: "Stored in our warehouse is a large quantity of perishable merchandise. A law suit is in progress over the ownership of the warehouse receipts issued for this merchandise and which receipts are being held as collateral for a loan.

"In the meantime the merchandise is deteriorating and probably will be worthless by the time the law suit is settled. Do you have in your files a court ruling that will assist our lawyer to convince the court that this merchandise should be withdrawn from storage and disposed of while it still has some value?"

The answer is: In the past the higher courts have held that one who holds warehouse receipts as collateral for a loan cannot be compelled to give up possession of the receipts until the loan is paid. Under a new higher court decision the holder of warehouse receipts must give up possession if the testimony shows that, for any reason justice will not be "meted out," otherwise.

For example, in M—— Bag Co., Inc., v. C—— Trust Co., 91 Atl. (2d) 469, the testimony showed facts as follows: The bag company stored paper in a warehouse and received warehouse receipts which it placed in the hands of a bank as collateral for a loan.

The paper company, from which the bag company had purchased the paper, went into bankruptcy and stopped manufacturing paper. The special kind and quality of paper required by the bag company is not available for purchase from any other source. Also, if it will be necessary for a bag company to begin to use another kind of paper in the manufacture of its products, it cannot then use the paper represented by the warehouse receipts.

Therefore, the bag company sued the bank to compel it to deliver up the warehouse receipts so it could get possession of the paper and then pay the bank the amount due on the loan.

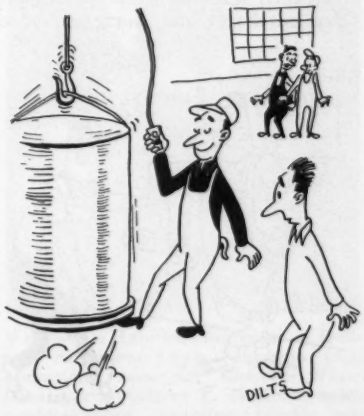
Since the testimony showed that if the paper remained long in the warehouse it would be of little value to the bag company, or any other company, the higher court ordered the bank to deliver the warehouse receipts to the bag company and said:

"The situation is a novel one, since there is no reported decision in which the precise situation and the relief here sought is involved. Defendant (bank) does not of course claim title to the paper. It is merely trying to impress thereon its lien for an unpaid balance.

"In view of the fact that the paper will shortly be of no value at all to the plaintiff (bag company) to permit the defendant (bank) to retain the warehouse receipts as security would cause the plaintiff to sustain irreparable injury and would be of little or no benefit to defendant."

Is warehouseman liable when he employs common carrier to transport goods in storage?

A warehouseman in Atlanta wanted to know whether a warehouseman is liable where he employs a common carrier to transport merchandise for a customer who had placed the merchandise in the warehouse for storage.



"He's just showing off, doesn't have any toes on that foot."

According to a late higher court decision the answer is yes. For illustration in McC—— v. G——, 253 S. W. (2d) 196, decided a few weeks ago, it was shown that in 1941 one McC—— stored his household and kitchen furniture with the G—— Moving and Warehouse Co.

In 1949 McC—— notified the warehouse company that he desired the goods delivered to his farm.

In accordance with this notice the warehouse company secured the H—— Van Lines to pick up the goods and deliver them at McC——'s farm. When the goods were delivered at the farm they were in damaged condition.

McC—— sued the moving and warehouse company for damages and proved that the goods were delivered to him in a very badly damaged condition, dirty, scratched and broken and numerous items lost or destroyed.

The testimony is undisputed that the goods were fairly new and had the reasonable market value of $900 when delivered to the warehouse company for storage and were of the value of $100 when delivered to McC—— at the farm.

The lower court awarded McC—— $682 damages and the higher court approved the verdict, saying:

"The measure of damages for respondent (McC——) is the difference between the reasonable market value of such furniture when left with appellant (warehouse company) for storage and the reasonable market value of such furniture in its damaged condition when it was delivered by appellant to respondent, natural wear and tear excepted.

(Please Turn Page)

Within the Law

(Continued from Preceding Page)

"We find that there was substantial evidence to support the findings of the jury and, under the law, we are bound by its findings."

Also, it is interesting to know that this higher court held that the warehouseman must pay the freight charges to the carrier.

In this respect, the court said that in such an instance and under circumstances as indicated the warehouseman must prove the carrier caused the damage, otherwise pay the freight bill.

A law suit is in progress over ownership of a large quantity of stored perishable goods. The warehouse receipts are being held as collateral for a loan. The merchandise is deteriorating and soon will be worthless. Can it be withdrawn while it still has some value?

Is a warehouseman within the law when he hires new employes to replace striking workers?

A warehouseman in Alabama would like to know whether a warehouseman is within the law where he hires new employes to replace striking employes.

According to a late higher court decision where a strike of warehouse employes is in progress, the warehouseman is free to hire replacements for the strikers at any time prior to their unconditional request for reinstatement, but on the other hand it is an unfair labor practice to discharge economic strikers prior to the time their jobs are filled.

For example, in National Labor Relations Board v. USCS Corp., 203 Pac. (2d) 924, the higher court held that where warehouse employes struck in support of their economic demands, they were engaged in a concerted activity for mutual aid or protection and did not cease to be employes.

Hence, discharge of employes before replacements had been hired constituted an unfair labor practice. This court said:

"They did not by striking in these circumstances cease to be employes and their discharge for engaging in the strike was accordingly a violation of 8(a) (1) of the Act."

This court went on to explain that a warehouse is free to hire replacements for the strikers at any time prior to their unconditional request for reinstatement, but on the other hand it is an unfair labor practice to discharge economic strikers prior to the time their jobs are filled.

Further evidence showed that the warehouseman sent a telegram to each striking employe reading as follows: "We consider the strike illegal since at no time did the company refuse to bargain.

"Under the circumstances we would like you to report back to your regular job within 24 hours after receiving this telegram on your regular shift time. If you do not report, we will consider that you are terminating your employment and a replacement will be hired."

The striking employes refused to abandon the strike and return to work and in consequence their discharge became effective on the day following receipt of the telegram. The higher court held that the warehouseman violated labor laws because he began hiring other employes. The court said:

"Having found that the respondent (warehouseman) violated 8(a) (1) of the Act by discharging its employes because of their strike activity and that respondent (warehouseman) had also violated 8(a) (5) of the Act by refusing to meet with the union during the strike the Board properly ordered respondent to cease and desist from the unfair labor practices found."

TRANSPORTATION

If mortgagor fails to receive sale notice sent by holder of mortgage, is subsequent sale valid?

Recently a reader wrote as follows: 'If a purchaser and mortgagor of a motor truck fails to receive a notice sent by the holder of the defaulted mortgage and then the holder sells the truck to recover the amount due from the purchaser, does this result in liability of the holder of the mortgage to the purchaser?"

"I warned you to be careful or this new job would tie you in knots

A late higher court decision answered this question in the negative. For example, in M—— Co. v. W——, 09 N. E. (2d) 338, it was shown that a dealer sold a motor vehicle to a motor truck owner named W——, and took a mortgage to secure the balance due.

In the mortgage was listed the address of W——, the purchaser and mortgagor. Later when W—— defaulted in making the agreed payments the holder of the mortgage sent a notice of the intended sale by registered mail to W——'s address shown on the mortgage.

This notice included the time, place and minimum price for which the mortgaged machine would be sold, together with the information that W—— would be held liable for any deficiency resulting from the sale. This notice never reached W—— due to a mistake made by the postal authorities in forwarding the letter.

The motor truck was sold by the holder of the mortgage to satisfy the mortgage. W—— sued the latter and proved that long before the notice was mailed out that he had notified the dealer that his address was changed from the address given on the mortgage. At this time W—— gave the dealer his new address.

Notwithstanding this evidence, the higher court held the dealer not liable, and within his legal rights in sending the notification of the intended sale to W——'s address listed on the mortgage. This court said:

"It is clear to me that where the mortgagee sends a notice to the address given in the mortgage that is a compliance with the statute."

Warehouse SPOTLIGHT

Allied Distribution Re-elects W. D. Leet

W. D. Leet, Chicago, Ill., was re-elected president of Allied Distribution, Inc., at the Annual Meeting in Boca Raton, Fla., on April 24. Morris M. Stern, Kansas City, Mo., served as chairman.

Other officers named were: John E. Flynn, New York, N. Y., vice president; William Brown, Chicago, treasurer; Miss Leonore Leet, Chicago, secretary.

All directors were returned to office. They are: R. E. Abernathy, Dallas, Tex.; F. D. Bateman, Chicago; H. M. Clark, Jr., Portland, Ore.; T. H. Duke, Jacksonville, Fla.; J. J. Finn, Denver, Colo.; E. G. Mooney, Hartford, Mass., and Mr. Leet.

—DA—

The Southwest Warehouse & Transfermen's Assn. has scheduled the annual convention, Oct. 13-15, in San Antonio, Tex.

—DA—

American Chain Meets, Compton Re-elected

The American Chain of Warehouses, Inc., conducted its 41st Annual Meeting in Boca Raton, Fla., on April 25. M. A. Compton, Boise, Idaho, was re-elected president.

O. S. Anderson, Kansas City, Mo., was named vice president, and A. N. Drake, of Newark, N. J., was re-elected treasurer. John W. Terreforte, New York, N. Y., was renamed executive secretary, assistant treasurer and Eastern manager, and H. H. Becker, Chicago, Ill., was reappointed Western manager.

In addition to general officers, those serving on the Board of Governors include: H. P. Chenoweth, Jacksonville, Fla.; J. L. Keogh, Buffalo, N. Y.; M. B. Koonce, Raleigh, N. C.; W. A. Morse, Minneapolis, Minn.; E. C. Schick, Davenport, Ia.; R. K. Mooney, Hartford, Conn.; N. W. Nablo, El Paso, Tex.; D. C. Fessenden, Los Angeles, Cal.; G. K. Weatherred, Dallas, Tex.; W. C. Hudlow, Jr., Chattanooga, Tenn.; C. J. LaMothe, St. Louis, Mo.; Miss Clara B. Karn, Columbus, O.

New Warehouses

Bekins Van & Storage Co. recently announced construction of their 58th storage terminal, a five-story structure in Pomona, Cal., scheduled for completion in August.

The Hartford Despatch & Warehouse Co., Bridgeport, Conn., is planning to add 20,000 sq ft to its present facilities, covering area of 40,000 sq ft.

Stevens Brothers, Saginaw, Mich., has added 15,000 sq ft of storage facilities. This new acquisition gives the company a total of approximately 70,000 sq ft of storage space in Saginaw.

O. K. Warehouse Co., Fort Worth, Tex., has moved into its new steel and concrete warehouse, 2140 S. Main St.

Merchants Refrigerating Co., East Modesto, Cal., is adding a reinforced concrete storage building, 178 by 203 ft, to its present plant.

Safe Antique Handling

Warehouse Handles Shipments of Delicate Antiques: Louis Schramm (L.), operations manager, Chelsea Warehouses, and Gilbert F. McKeon, sales representative, examine fragile antiques that were shipped to National Antiques Show, New York City

Associated Warehouses Mark 20th Anniversary

Associated Warehouses, Inc., celebrated its 20th anniversary at the Annual Meeting in Boca Raton, Fla., in April. A. R. O'Dell, Jr., of Jacksonville, Fla., was elected president.

Ward Castle, Chicago, Ill., was named vice president, and A. O. Walde, Los Angeles, Cal., treasurer. B. A. Strohm, Indianapolis, Ind., was named chairman of the Board of Directors.

Directors include: H. C. Cockrell, Richmond, Va.; I. S. Culver, San Francisco, Cal.; F. C. Hubbard, Grand Rapids, Mich.; S. C. Johnson, San Antonio, Tex.; George Lecay, New York, N. Y.; Leo Pistorino, Boston, Mass.

Also, Joe Rose, Memphis, Tenn.; R. W. Rounsavall, Jr., Louisville, Ky.; W. C. Strobel, Saginaw, Mich.; C. F. Vogt, Cincinnati, O.; W. F. Winters, Buffalo, N. Y.; M. A. Young, Baltimore, Md.

Topics discussed at the meeting included: Labor, New Construction, Forms, Fire Protection, and Equipment Leasing.

—DA—

NCHHGMA Organized

The North Carolina Household Goods Movers Association was organized at a meeting in Greensboro May 8. George D. Lentz, Winston-Salem, was named first president.

Other officers are: J. L. Wilkerson, Jr., Charlotte, first vice president; Walton McNairy, Greensboro, second vice president; P. D. Spell, Raleigh, secretary-treasurer.

(Please Turn Page)

Warehouse Spotlight . . .

(Continued from Preceding Page)

Officers and Directors of the Mayflower Warehousemen's Assn. Elected for 1954: (1 to r, 1st row) H. A. Borley; J. C. Maupin; A. Francis Roederer, secretary-treasurer; Frank P. Finnegan, president; M. R. Goodwin, chairman of board; Stanley Barrows, Jr.; J. R. Christiansen; R. R. Brown; A. E. Kinder. (1 to r, 2nd row) Taylor M. Boyd; Collier F. Hendricks; J. Parker New; J. M. Thornton; Duane R. Culbertson; D. L. Westergard; George Wells; P. C. Tucker; John P. Wooldridge. Not shown are Robert G. Courtney; Lee J. Sloan and D. Macaulay

Mayflower Warehousemen's Assn. Elects Finnegan At 22nd Annual Convention, Boston, Mass.

Frank P. Finnegan was elected president of the Mayflower Warehousemen's Assn. at the 22nd Annual Convention held recently in the Sheraton Plaza Hotel, Boston, Mass. A. Francis Roederer was re-elected secretary-treasurer.

Election for offices of vice president, director and nominating committee member of each of the nine districts comprising the organization were held (see photograph).

One of the convention highlights was a panel on "Palletized Warehousing," moderated by Parker New with Arthur Kriegsman, Collier Hendricks, W. N. McKinney and Guy Penn exchanging views on the newest method of warehousing furniture.

—DA—

Distribution Service Names Officers

Distribution Service, Inc., elected A. M. Lownsbury, Cleveland, O., president at its Annual Meeting in Boca Raton, Fla., April 25. Other officers named were: R. M. Cornwall, Salt Lake City, Utah, vice president; H. F. Partridge, Chicago, Ill., treasurer; J. G. Temple, Chicago, secretary.

The board of directors includes: Frank Burns, Des Moines, Ia.; C. J. Grimley, Boston, Mass.; C. W. Drake, Newark, N. J.; Jay Weil, Jr., New Orleans, La.; D. E. Taylor, Spokane, Wash., and Mr. Lownsbury and Mr. Cornwall.

—DA—

Clausen Transfer & Storage, Teaneck, N. J., celebrates its 30th year in the moving and storage business.

Interlake Terminals Meet in Chicago

Officers, directors and members of Interlake Terminals, Inc., held their Annual Meeting at the Union League Club, Chicago, Ill., on May 3.

Members were present from Atlanta, Buffalo, Chicago, Cleveland, Omaha, Green Bay, Kansas City, Los Angeles, Oakland and Portland. Considerable time was devoted to discussing ways and means of serving shippers more efficiently and developing membership service to the highest degree of efficiency.

All officers were re-elected. They include: George G. Roddy, president; William G. Tanzer, vice president; Vernon Williams, vice president; Rudie Wilhelm, Jr., vice president; E. W. Leicht, secretary.

Men in the Spotlight

Milo W. Bekins, Jr.—new district manager, Bekins Van & Storage Co., Beverly Hills division, Cal. He replaces **Richard H. Daum**, who is taking a leave of absence to join W. H. Daum & Staff, warehouse and industrial realtors, Los Angeles, Cal.

Hobert K. McDowell, president, City Transfer & Storage Co., a United Van Lines' agent at San Angelo, Tex. —appointed U. S. Marshal for the Northern District of Texas.

Theodore Sofia, Jr.—elected executive vice-president, Sofia Brothers, Inc., New York, N. Y. He will handle this new position in addition to general sales manager.

Kent Adams—new traffic manager of Pacific Northwest Warehouses, Inc., Seattle, Wash.

Michael O. Lewis — appointed general manager, Yellow Rental, Inc., Warehouse Div., Philadelphia, Pa.

A. A. Friedel, president, Lincoln Storage Co., Cleveland, Ohio—elected president, Ohio Movers Warehousemen's Assn.

Edward J. McClain, McClain & Filo, Philadelphia, Pa.—elected president, Eastern Chapter, Pennsylvania Furniture Warehousemen's Assn.

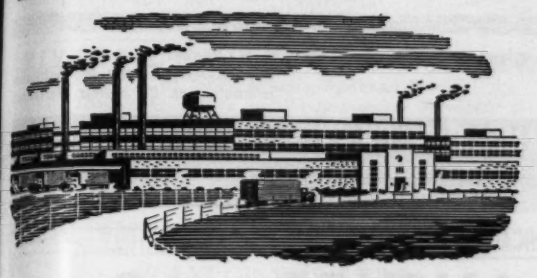
W. A. Johnson—founder and president of Johnson Storage & Van Co., Fort Worth, Tex., died recently after a long illness. He was also president of the Abilene Storage Co., Abilene, Tex., and the Diamond-T Sales Co., Fort Worth, Tex.

Richard H. Powell, manager, Rochester Storage Warehouses, Inc.—elected president of the Rochester, N. Y., Truckmen's & Warehousemen's Assn.

Arthur J. Weber—appointed vice-president and general manager, Mead Johnson Terminal Corp., Evansville, Ind.; **V. H. Juncker**—secretary-treasurer and operations manager.

F. D. Bateman, president, Griswold & Bateman Warehouse Co., Chicago, Ill.—elected president, Illinois Assn. of Merchandise Warehousemen. He was also recently chosen chairman, Government Relations Committee, AWA.

Joseph A. Whitmore—elected vice-president, Manitoba Cartage & Storage Ltd., Winnipeg, and Western Cartage & Storage Ltd., Edmonton, Canada.



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Trailability Determines . . .

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points are involved. A special application of the fifth-wheel steering mechanism to both ends of the trailer (double fifth-wheel) makes this type trailer reversible.

The third type of trailer, the four-wheel steer trailer, has all four wheels arranged to steer simultaneously. This type of trailer is often a further adaptation of a double fifth-wheel type, namely, two fifth-wheel steering assemblies connected by cross bars. In some designs four-wheel steering is accomplished through use of knuckle mounted wheels.

Four-wheel steer trailers are excellent where accurate trailing is absolutely essential. However, they are extremely difficult to maneuver by hand and require considerable space in which to turn.

Trailability

The relative positions of the fixed wheels and the articulate points of the couplers determine the ability of the trailer to approximate the initial path of the tractor. An analysis of the steering action of the caster-wheel trailer, as a typical consideration, will illustrate the relationship between wheel position and trailability.

If the positive or fixed wheels of a hypothetical trailer of this type are located midway between the articulate points of the couplers, the trailer will move in such a manner that every articulate point will follow the path of the turning arc and will always be equally distant from the theoretical vertical axis running through the middle of the fixed axle.

In theory, a trailer constructed in this manner will trail perfectly. However, a trailer with its fixed axle in the middle is susceptible to whipping actions caused by the normal side motions of the tractor.

Whipping Tendency

This tendency to whip is easily understood if we consider the trailer as a lever pivoted at its middle and taking alternate thrusts at its front end from the right and left, as seen in Fig. 2-A.

It can be seen that any force transmitted in equal magnitude by the rear coupler to the next trailer. In other words, there is a one-to-one ratio between the two forces because their lever-arm distance is equal.

Moving the fixed wheels forward, as shown in Fig. 2-B, would tend to magnify the transmitted forces. For example, any side motion transmitted from the tractor to the front trailer coupler would be transmitted by the rear trailer coupler to the next trailer and magnified by the ratio of the rear lever distance to the front lever distance of the trailer.

Therefore, the ideal solution—one that will inhibit rather than induce whipping—would be to move the fixed axle rearward, as shown in Fig. 2-C, so that any transmitted side motion would be diminished rather than magnified.

Whip vs. Trailability

Unfortunately, any gain in the trailer's ability to counteract whipping is accomplished at the expense of trailability. Because the centerline of the fixed axle no longer passes through the center point of the turning arc, the train made up of trailers whose fixed axles are located to the rear of the center of the platform will not follow the curve accurately.

These trailers cut in a trifle as they trail and have separate paths and separate pivot points. Thus, the turning path, formerly a circle now resembles a parabola, see Fig. 3, and the pivot point is now an instantaneous center.

Naturally, with this constant trailing error or deviation, the extra aisle width needed for turning is further determined by the number of trailers in the train—the longer the train, the wider must be the aisle dimensions.

A train of five or six trailers has

(*Please Turn Page*)

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been found to offer optimum load-carrying capacities without requiring uneconomically large aisle widths. In addition, aisle and corridors are not seriously tied up as they would be if 20 to 25 trailers are used (as in some railroad warehouse installations).

As shown in Fig. 3-A, a train of caster-wheel steer trailers trails perfectly (with a circular turning path) when the fixed axle of each trailer is located midway between the articulate points.

However, the tendency for these trailers to whip is high. With the fixed axle located to the rear of center, as shown in Fig. 3-B, each of the five caster-steer trailers in the train deviates slightly from the initial path of the tractor.

This deviation causes the turning path to resemble a parabola and makes aisle-width dimensions larger. However, trailability is still good and the whipping tendency is almost eliminated.

Experience has shown that reasonably accurate trailing without whipping can be achieved if the fixed wheels are located approximately one-third of the deck length from the rear of the trailer.

The location of the free-swiveling casters has no bearing whatsoever on the trailing of the vehicle and little or no effect on the whipping. However, their location does affect the gradability and stability of the trailer.

If the king pins of the swivel casters are located approximately one-sixth of the deck length from the front of the trailer, gradability and stability will be good.

Because industrial trailers are designed to effect a compromise between trailability and whipping, their turning points — instantaneous centers with constantly-changing paths — are difficult to lay out on paper.

Tests run on actual equipment, or scale models, offer the quickest, easiest and most accurate methods for determining tracking paths and aisle-width dimensions. Fig. 4 tabulates and illustrates typical test results.

In this illustration, a 41- x 72-in. three-wheel, short-turning radius tractor is shown towing a train of six 36- x 72-in. caster-wheel trailers through 90- and 180-deg turns.

Tabular values give: (A) The necessary aisle-width dimensions (with sufficient clearance) for trains from one to six trailers turning through a right-angle turn, and (B) The minimum distances that trains of four, five, and six trailers must be from the end wall when making a U-turn.

Beyond a certain number of trailers, aisle-width dimensions for all practical purposes remain the same. For example, the results of this test showed that an overall dimension of 21½ ft is sufficient for any number of trailers.

The reason for this is that after a certain number of trailer turns, the maximum turning angle of the trailer couplers is reached and the remaining vehicles in the train—instead of following a constantly-deviating path—now follow a relatively fixed path.

Curves compiled by manufacturers of tractor-trailer systems are useful in determining aisle-width dimensions.

The curves in Fig. 5 give the recommended minimum intersecting aisle-width dimensions for trains of caster-wheel trailers, equipped with safety self-couplers, whose fixed axles are one-third of the deck length from the rear of each trailer.

To ascertain minimum intersecting aisle sizes: (a) Find the number of trailers in the train on the abscissa of the graph, (b) Follow the vertical line upward to the curve of the correct trailer size, and (c) Follow the horizontal line across to the ordinate of the graph where the values for intersecting aisle-widths are given in feet. To this value add approximately 1 ft for clearance.

For example, a train of eight 36- x 96-in. trailers would require approximately 11½-ft aisle widths. Allowing for proper clearance for this train, we add 1 ft which makes the recommended dimension 12½ ft. To find aisles for trailer widths not shown, find intersecting aisles for trailers of same length and add or subtract the difference in width. •

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